



## Thaltej Village:

*An Incremental Approach to  
Urban Encroachment*





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Emily Brown

Allison Buchwach

Ryan Hagerty

Mary Richardson

Laura Schultz

Bin Yan

Under the advisement of Professor Michael Dobbins

Georgia Institute of Technology

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# 1 Introduction

The following report was completed by at Georgia Institute of Technology in Spring 2012. This studio was a collaborative international exchange between Georgia Tech and Center for Environmental Planning and Technology (CEPT) in Ahmedabad India. Eleven students travelled to India in December 2011 to establish a problem statement, learn about the planning process and policy in India, and collect data necessary to proceed through the Spring 2012 semester.

This project specifically addresses Thaltej Lake and the surrounding communities in Western Ahmedabad. As the city expands rapidly, increasing development pressure surrounds the former village and dilapidated lake, which currently is home to many slum dweller populations. It was determined that an approach to enhancing the environs and quality of life in Thaltej must address three primary issues: environmental and public health restoration, economic concerns of the City, and the needs of the current residents. While these three concerns may be competing, an ideal solution must reconcile and provide for all three.

The following project describes the background and context of slum redevelopment in India, Gujarat, and Ahmedabad. Detailed accounts of the economic, social, and environmental conditions at Thaltej are included. In addition, case studies and best practices are described. Through site analysis, interview research, and case study analysis, four alternatives are presented in the report ranging from environmental upgrade to a full-scale redevelopment plan for the area. Financing schemes are considered as well as a public participation plan for the rebuilding process, which applies to all four scenarios.

In conclusion, no one alternative is recommended over one another since it is feasible to implement all alternatives over a period of time

## Project Overview

Ahmedabad is known as a city of lakes, both natural and man-made, dispersed around the city for collecting rainwater, irrigation, and to recharge ground water levels. The city has undergone a massive lake linking project in order to allow excess water to flow into other lakes until it reaches Sabarmati or the Gota-Gadhav canal to be used for irrigation.

Thaltej is a lake on the far western edge of Ahmedabad. Since the city has continued to expand outward, development pressure has increased in the area and the lake has recently become an interest to the Ahmedabad Municipal Corporation (AMC) and the Ahmedabad Urban Development Authority (AUDA) as a potential redevelopment project. Currently, the lake is surrounded by a large slum population who has lived around the water body for 25-35 years. In addition, the lake and the surrounding area are extremely polluted.

## Methodology + Disclosure

While in Ahmedabad, data collection included taking photographs of the site, demarcating the locations of drainage points and other environmental indicators, and mapping the land uses as seen on the ground. Interviews were conducted with Thaltej Village residents, slum residents, and local business owners by having an Indian student from CEPT serve as a translator. Interviews were of an informal style and were used to gauge the stakeholder's perceptions and perspectives regarding the site. In addition, interviews of local officials such as the *panchayat* office and the city's engineer for conducted.



Throughout the project, there were many barriers to obtaining accurate and quality data. First, the on-site data collection period was very brief due to time constraints. Second, upon leaving India, it was very difficult to obtain additional information from abroad. Lastly, data in India both on the local and national level is generally inaccessible, not well documented, and rarely available digitally on the Internet. Therefore, many assumptions had to be made in order to carry through with the project and come up with the alternatives presented. In addition, many alternatives presented in this report had to remain at somewhat of an abstract or conceptual level.

It is important to recognize that many of the ideas and research efforts involved in this report were derived from the case studies found both in India as well as around the world. Beyond the primary data collected in India, the group relied on previous cases to understand consequences, implications, and contexts to slum redevelopment and resettlement.

## **Problem Statement**

An approach to enhancing Thaltej Lake and the surrounding areas must comprehensively address three primary issues: the restoration of the physical environment including sanitation and public health measures, the desire of the City to increase the tax base and provide recreational amenities, and the needs of the current residents for basic social services and infrastructure, as well as their need to maintain a social framework that supports their livelihood. While these three concerns may be competing, an ideal solution must reconcile and provide for all three.

## 2 Indian National Context

In order to create an understanding of the current conditions of the slums and water bodies at Thaltej Village, it is necessary to contextualize the project in relation to the larger, historic socioeconomic forces that have shaped India's urban areas. The following section explores the recent history of India's urbanization and its impacts on slum formation and environmental degradation, as well as the various policy responses to slums and the environment of the last half-century.

### 2.1 India's Urbanization and its Impact on Slums and the Environment

As India's Class I cities have become more industrialized during the last century, it has grown increasingly urbanized. At the turn of the twentieth-century, only 10.8 percent of India's population lived in urban areas. In the early 2000's, close to 28 percent of the population, or 285 million people, lived in urban areas (Sivaramakrishnan, Kundu, and Singh, 2007). The growth in urban population parallels the growth in the number of urban areas. In 1901, there were 1,827 towns/urban areas and in 2001 there were 4,368, as is illustrated in Table 2.1.1. Today, approximately 68.7 percent of the urban population lives in cities with more than 100,000 people and 38 percent live in cities with more than one million people.

Urbanization has four primary causes: natural increases, rural–urban migration, the creation of new urbanized areas, and the expansion and amalgamation of existing urban areas. From the 1960's through the 1990's, natural increases accounted for 60

percent of urban population growth. Rural–urban migration is the second largest cause. In the 1960s, 18.7 percent of urban population growth was due to rural migration, and in the 1990s, that rate increased to 24.2 percent.

Over the last few decades, the absorption of urban population growth has shifted from the creation of entirely new urban areas to the expansion of existing administrative boundaries. In the 1960s, population growth in entirely new urban areas was 13.2 percent versus 6.2 percent in the 1990s. Conversely, in the 1960s, population growth in expanding urban areas was only 2.9 percent versus 9.7 percent in the 1990s. (Sivaramakrishnan, Kundu, and Singh, 2007).

Table 2.1.1: India's Urbanization

Year	# of Towns/UAs	percent Urban Population	Annual Growth Rate of Urban Population
1901	1827	10.84percent	
1911	1815	10.29percent	.03
1921	1949	11.18percent	.79
1931	2072	11.99percent	1.75
1941	2250	13.86percent	2.77
1951	2843	17.29percent	3.47
1961	2365	17.97percent	2.34
1971	2590	19.91percent	3.21
1981	3378	23.34percent	3.83
1991	3768	25.72percent	3.09
2001	4368	27.78percent	2.73

Despite vast increases in India's urban populations over the twenty-first century and significant economic growth since the 1990s, India's rate of urbanization has begun to slow in recent decades (See Table 2.1.1, Column 4). The annual growth rate of urban areas peaked in the 1970s at 3.8 percent, and has since declined to 3.1 percent in the 1980s, and 2.73percent in the 1990s, which is much slower compared to other developing countries.

Planners, economists, and policy makers, have theories on why—despite India’s consistently high economic growth—the country’s urbanization has slowed and does not compare to other high growth economies. Economists cite the 1970s restructuring and dismantling of larger industries in cities as a partial explanation to slowed urbanization (Hashim, 2009). Over the last few decades, India’s industrial composition has bifurcated from large, labor-intensive, urban factories into more capital intensive factories and informal, household production (Hashim, 2009).

Although urbanization has slowed, it is still a highly influential for the future of India’s settlements. Despite the decreasing percentage change in urban populations, the real numbers of growth remains staggering. In the 1990s, nearly seven million more people every year are calling urban areas in India home (Sivaramakrishnan, Kundu, and Singh, 2007).

Large, Class I cities like Ahmedabad, which have large manufacturing and services bases, continue to grow at much higher rates. In the 1990s, Class I cities had an annual growth rate of 3.42 percent, which is significantly higher than lower class cities, with rates ranging from .8 to 2.15 percent annually (Sivaramakrishnan, Kundu, and Singh, 2007).

### **Impact of Urbanization: Lack of Housing**

The concentrated growth in existing large urban areas in India creates severe challenges for housing and the environment. Informal housing settlements are just one byproduct of India’s urbanization. Despite the level of urban poverty decreasing over the last two decades, India’s slum populations continue to grow, swelling to nearly 170 million

people in the early 2000s (Edelman and Mitra, 2006). As of 2001, national statistics of cities and towns with populations of more than 50,000, found that approximately 15 percent of the urban dwellers in India live in slums, totaling around 42.6 million people (Risbud, 2009). These collective figures do not highlight how extreme the housing and infrastructure problem can be. In Mumbai, for example, 48.8 percent of residents, or over 11 million people, live in slums. In Ahmedabad approximately 20 percent of the population lives in 710 slum pockets (Makwana, 2006).

Despite efforts to document and track slum population growth, much of the data collection and classifications have differed over time. For example, the first estimate of slum populations across India was taken in 1971 and limited to a sample of Class I cities. The 1991 and 2001 Census collected more detailed data on slum populations, but limited the estimates to cities and towns with populations greater than 50,000.

Counts also vary based on the notification status of a slum by municipalities, corporations, local bodies, or development authorities. Notified slums are eligible for improvements under government programs, whereas non-notified slums have to rely on non-government sources for access to basic services. Overall, the number of notified slums have been increasing, from 36 percent in 1993 to 51 percent in 2002 (Risbud 2009, 180). Like all statistics, these numbers vary widely by state and city. For instance, Gujarat has actually decreased its percentage of notified slums from 47.93 percent in 1993 to 26.32 percent in 2002.

Slums across India share similar characteristics to one another such as the location within a city and size. Approximately 90 percent of slums across

India's urbanized areas are located in residential areas; however, this land is typically lower quality "marginal lands along the riverbanks, drains, low-lying areas, ill slopes, and railways tracks" (Risbud, 2009). According to 2000 Indian Census around 64 percent of slums are located on public land and 36 percent are located on private land. Finally, the average slum size across India is small, with only about 159 households (Risbud, 2009).

Within these slums, hygiene and sanitation is a primary problem. Access to toilet facilities in slums actually declined from 54 percent in 1993 to 17 percent in 2002. Despite an increase in the number of toilets, these toilets are often "badly located, extremely unhygienic and dirty, and are not maintained; they fall into disuse due to overuse" (Risbud, 2009). The lack of toilets leads to widespread open defecation. For example, in a study of Delhi's slums, 26 percent of adult males, 25 percent of females, and 63 percent of children openly defecated (Risbud, 2009).

Many of the hygiene problems relate directly to the limited access to clean water. Despite overall increased access to tap water, many slums experienced a decline in their access to water during the 1990s. It is common in slums for the public stand post to not work because of maintenance and/or overuse. Moreover, the public stand often exceeds the standards established by public authorities of 150 persons per stand. Water access also varies by both the time of day and the season. Because of this poor and inconsistent access to water, slum dwellers commonly have to fetch water from multiple water sources and store the water.

While hygiene remains woefully inadequate, there have been some overall improvements to slum conditions. In 1993, only 30 percent of slums had *pucca* houses, structures made out of permanent material. This number increased to 48 percent in

2002. This demonstrates the increased permanency of the slum settlements in many cities. During the last two decades, there have been various efforts throughout India to increase the tenure for slum dwellers, which provides residents to invest more in improving the conditions. Additionally, as more slums have developed on private land, there is less threat of eviction by the public. While these changes are minor, they have improved the conditions for millions across the country in the past decades.

## 2.2 Impact of Urbanization: Environmental Degradation

Air and water pollution have increased in India's major cities and remain critical problems for environmental integrity and public health. Much of the pollution stems primarily from increasing and unmanaged population growth, especially in the form of slums, and growth of industries using coal powered energy sources and producing solid wastes. Another source of air pollution is emissions from motor vehicles, which have also increased in number following population growth.

According to the Indian government's Central Pollution Control Board, 72 major Indian cities are not in compliance with the government standards for one or more of air pollutants that have consequences for human health (Central Pollution Control Board, 2008). Those pollutants include sulfur dioxide, nitrogen dioxide, suspended particulate matter, and respirable suspended particulate matter. Respirable particulate matter is the most occurring standard exceedance in cities. Most often pollution exceedances are due to motor vehicle emissions, but also occur due to the presence of industries in cities as well as natural dust. The number of motor vehicles has increased tremendously, from 1.9 million in 1990 to 5.3 million in 2000.

Generally, ambient air quality had become polluted enough to contribute to a rise in mortality rates in 2005 (Maiti and Agrawal, 2005).

Water quality has also worsened. Monitoring led by the Indian government has shown that organic and bacterial contamination of water bodies is a critical problem. This condition is mostly caused by untreated waste water entering the water body system due to discharge of domestic wastewater in urban centers and the inability of the municipal government to meet the demand in volume of wastewater that needs treatment. The high demand for wastewater treatment and the under-capacity of municipal government often results in sewage left untreated and released into water bodies. The problem is exacerbated by the low availability of water in rivers (Central Pollution Control Board, 2008).

Another pollution-related challenge in urban centers is solid waste management. Solid waste is often left in low-lying areas of the city's outskirts and poses public health concerns. Four major cities in India, including Mumbai, Delhi, Kolkata, and Chennai, were studied and show production of ash, textiles, paper, leather, plastic, and compostable matter as the predominant wastes generated. In 1996, the municipal solid waste volume was 5355 tons/day in Mumbai, 4000 tons/day in Delhi, and 3124 tons/day in Chennai (data missing for Kolkata). The waste will continue to be a problem in terms of health hazards if it goes unmanaged and Indian cities continue to be preferred locations for packaging of consumer goods (Maiti and Agrawal, 2005).

## 2.3 Policy Responses

As India's Class I cities have become more industrialized during the last century, it has grown increasingly urbanized. At the turn of the twentieth-century, only 10.8 percent

of India's population lived in urban areas. In the early 2000's, close to 28 percent of the population, or 285 million people, lived in urban areas (Sivaramakrishnan, Kundu, and Singh, 2007). The growth in urban population parallels the growth in the number of urban areas. In 1901, there were 1,827 towns/urban areas and in 2001 there were 4,368, as is illustrated in Table 2.1.1. Today, approximately 68.7 percent of the urban population lives in cities with more than 100,000 people and 38 percent live in cities with more than one million people.

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Despite vast increases in India's urban populations over the twenty-first century and significant economic growth since the 1990s, India's rate of urbanization has begun to slow in recent decades. The annual growth rate of urban areas peaked in the 1970s at 3.8 percent, and has since declined to 3.1 percent in the 1980s, and

2.73 percent in the 1990s, which is much slower compared to other developing countries.

Planners, economists, and policy makers, have theories on why—despite India’s consistently high economic growth—the country’s urbanization has slowed and does not compare to other high growth economies. Economists cite the 1970s restructuring and dismantling of larger industries in cities as a partial explanation to slowed urbanization (Hashim, 2009). Over the last few decades, India’s industrial composition has bifurcated from large, labor-intensive, urban factories into more capital intensive factories and informal, household production (Hashim, 2009).

Although urbanization has slowed, it is still a highly influential for the future of India’s settlements. Despite the decreasing percentage change in urban populations, the real numbers of growth remains staggering. In the 1990s, nearly seven million more people every year are calling urban areas in India home (Sivaramakrishnan, Kundu, and Singh, 2007).

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improvements to slum conditions. In 1993, only 30 percent of slums had *pucca* houses, structures made out of permanent material. This number increased to 48 percent in 2002. This demonstrates the increased permanency of the slum settlements in many cities. During the last two decades, there have been various efforts throughout India to increase the tenure for slum dwellers, which provides residents to invest more in improving the conditions. Additionally, as more slums have developed on private land, there is less threat of eviction by the public. While these changes are minor, they have improved the conditions for millions across the country in the past decades.

## 2.4 Policy Responses

Since the 1950s, policy makers in India have been addressing the issue of urban migration and the proliferation of informal settlements in cities. Although there have been numerous policies, schemes, and programs at all levels of the government, the slum policy history for India can be captured by the five major program eras in Mumbai (Mukhija, 2003). Although the following five strategies are specific to Mumbai, they are characteristic of the general policy approaches to slums in India's cities.

### 2.4.1 Slum Clearance (1956)

Early slum legislation sought to address slums through clearance. Overall, the strategy of slum clearance was based on the idea that slum dwellers should be removed and resettled into public housing. Although this legislation was enacted at the national level, it was executed at the state level with great variation among the states. At the state and city level, slums were categorized into 'clearance areas,' 'redevelopment areas,' and 'improvement' areas. Typically, if slum clearance was implemented, due to

the financial viability, it was for select, well-located slums.

#### **2.4.2 Slum Improvement (1971)**

Based on the shortcomings of slum clearance policies, policies shifted to favor slum improvement in the early 1970s. These policies took a holistic view of incrementally improving the conditions of the slums. “Slum improvement was emphasized by firmly linking improvement programs with security of tenure, social development programs, and house improvement loans” (Risbud, 2009). For example, the national Minimum Needs Programme (1972) provided slums with community taps, community toilets, storm water drains, paving of lanes, and streetlights. Because of the “bottom-up” methods of slum improvement schemes, the approaches vary widely; however, Risbud (2009) categorizes five channels used for slum improvements:

- > Central government policies for slum improvement and poverty alleviation
- > Slum improvement in selected cities through international and bilateral aid
- > Slum improvement and tenure regularization through state legislation and state government programs
- > Slum improvement and redevelopment projects with private sector participation
- > City-specific initiatives

#### **2.4.3 Slum Upgrading Program (SUP) (1985)**

Whereas slum improvement schemes focused more on the improvement of environmental conditions, slum upgrading programs, which emerged in the 1980s with the support of the World Bank, emphasized transforming slum dwellers into legal land owners. Because most slums are illegal and informal, slum residents constantly risk displacement. The logic behind slum

upgrading was if slum dwellers had the security of land tenure, they would invest and improvement into their homes, and over time, the conditions of the slums would improve.

#### **2.4.4 Slum Redevelopment Scheme (SRD) (1991)**

The Slum Redevelopment Scheme was implemented during the same year as India’s economic liberalization. In this era of privatization, it is no surprise that slum policies were based on unleashing market forces to address slums’ problems. SRD allowed private developers to redevelop slum sites, most of which were located on government owned land, with new units for slum residents. By allowing greater density at the site, slum units would be subsidized with market rate units. To prevent rampant speculation, in addition to requirements for slum units, the scheme capped investors profit at 25 percent of the investment. Despite the progressive intentions of this policy, the paperwork and the investment cap prevented the scheme from gaining traction in Mumbai.

The primary mechanisms of the scheme, granting greater density to subsidize slum housing with market rate housing, are typical ways of market solutions to slum problems.

#### **2.4.5 Slum Rehabilitation Scheme (SRS) (1995)**

With steep property value escalation during the early 1990s and the failures of the SRD, the Slum Rehabilitation Scheme (SRS) was introduced to promote private solutions to slum rehabilitation. The SRS was based on ratios between the total area of new housing for slum dwellers (the rehabilitation area) and the area of new market rate housing, which allowed for predictability across Mumbai’s slums. Like the SRD, SRS allowed for greater density



with a FAR cap of 2.5. Unlike SRD, developer profits were not capped. Unlike previous schemes, the combination of these different mechanisms provided a large subsidy to developers. Under this new program, a great number of slums across Mumbai were “rehabilitated”

Because of its successes in developing new slum housing, the Slum rehabilitation Scheme has served as a model for slum later redevelopment schemes in both Mumbai and other cities across India.

# 3 Gujarat & Ahmedabad Context

## 3.1 Gujarat

### Intro

The state of Gujarat is located in western India, bordered by Rajasthan to the north, Maharashtra to the south and Madhya Pradesh to the east. With a total area of 75,686 sq. mi., the state sits on the Arabian Sea and borders Pakistan on the western edge. Gujarat is the tenth largest state in India, with 60,383,628 people according to the 2011 Census. The state covers six percent of the total land coverage of India and houses five percent of the population (Census, 2011).



Map 3.1: Location of Gujarat

### Urbanization

Historically, Gujarat has always outperformed other Indian states economically and has developed and

industrialized at a faster rate. Particularly since the introduction of economic reforms in India in the early 1990's, Gujarat has been an economic growth center for the country of India. Population growth is one indicator of Gujarat's rapid development, which remains higher than the national average growth rate of 17.5 percent per decade (Census, 2011). From 1991 to 2001, the population of Gujarat grew at a rate of 22.6 percent and from 2001 to 2011 the population grew at a rate of 19 percent. In addition, while India's population still largely resides in rural areas (estimated 73 percent), Gujarat has experienced extensive urbanization. In 2011, it was estimated that 42 percent of the population of the state lives in urban areas, making it the 3rd most urbanized state. According to the City Managers' Association Gujarat, if the state continues to urbanize at this rate, 47 percent of the population will be living in urban areas by 2021 or 35 Million people.

Gujarat is the fifth richest state in India (Arya and Mehta, 2011). Much of Gujarat's economic success can be attributed to its diversified economy, the commercialization and therefore high productivity in agriculture, and a strong manufacturing and industrial sector. Gujarat is known for its pro-business attitude in its promotion of private enterprises and entrepreneurial culture. In addition, the state calls for a high level of public participation in the development process relative to other states (Arya, Anita, Nati).

### Slum Development and Poverty Populations

While Gujarat is one of the fastest growing states, economic growth has not trickled down to lower income populations and therefore has not allowed for a reduction in poverty throughout the state. In 2011, 31.8 percent of the population was considered as living below the poverty line (Rajiv Shah, 2011). Looking at hunger levels across

Indian states, Abusaleh Shariff (Subrahmaniam, 2011) found that while Gujarat boasts higher per capita income and income stability than other states, hunger levels were higher in Gujarat and Gujarat scored lower on the Human Development Index than other less wealthy states. He attributes this finding to the drastic rich-poor disparities found across the state (Kashap and Mehta, 2011).

According to the 2001 Indian Census, nearly 12 percent of the urban population lives in slums or 18.67 *lahks* (1,867,000). Much of the squatter and slum populations in Gujarat consist of disadvantaged rural populations that migrate to urban areas in search of work. For employment, they often provide services and cheap labor to the city while living on the periphery of urban areas. These informal settlements often lack access to basic amenities and services such as access to safe drinking water, access to flush toilets, garbage removal services, electricity and basic infrastructure. Since Gujarat is prone to flooding, lack of infrastructure such as drainage and flood control mechanisms in settlements further affect drinking water supplies, facilitate the spread of diseases such as diarrhea and malaria.

### Gujarat Response to Slums

At the state level, the government has taken steps towards improving the lives of slum dwellers. An instance is the Gujarat Slum Areas (Improvement, Clearance and Redevelopment) Act, 1973, which was subsequently amended in 1988. Among other provisions, the Act allows the government to improve the physical infrastructure in slums and to recover costs from slum dwellers. For implementation purposes, the Gujarat Slum Clearance Board (GSCB) was set up to take up housing projects for low-income groups. The GSCB was not able to successfully carry out in site upgrading, and, according to official

numbers, was able to construct 16,700 new units, of which about ten percent are vacant. Following the recommendations of a committee under the Private Sector Restructuring Program, which was carried out with the purpose of reducing the state government's participation in the commercial sector and increasing private sector participation, the GSCB was shut down and all its assets and liabilities were transferred to the Gujarat Housing Board.

Another program implemented by the state government in the 1970s was the Urban Community Development Program (UCD), which provided for a separate UCD cell in the AMC responsible for health, education and other community development initiatives for the urban poor. In addition, the state government amended the Bombay Municipal Corporation Act 1949 (under which AMC is constituted) to make it mandatory for the AMC to spend at least ten percent of its own revenue for improving basic services in slums and *chawls*.

### Environmental Concerns

Economic growth and development has put a large strain on environmental resources and the quality of the environment in the state. While pollution is always a consequence of industrialization, the industry sectors in Gujarat are particularly harsh on environmental systems and often are located in close concentration to one another. Industries throughout the state include textiles, chemicals, petrochemicals, drugs and pharmaceuticals, and cement and ceramics. Since environmental regulation is controlled by state pollution control boards, in this case the Gujarat Pollution Control Board, states have trouble enforcing regulation due to competition to be pro-business. With an absence of regulation of these industries as well as inadequate waste disposal infrastructure, air pollution, water pollution, land pollution, coastal

ecology concerns, and extensive deforestation are prevalent in the state (Kashap and Mehta).

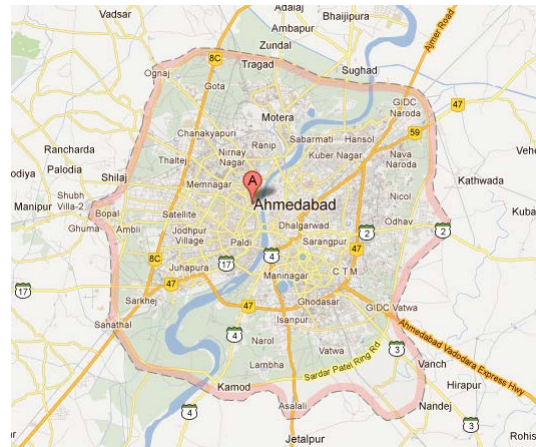
## 3.2 Ahmedabad: Profile of the City

### Location

Ahmedabad is the largest city in Gujarat and the seventh largest in India. Located on both banks of the Sabarmati River in North-central Gujarat, the city encompasses 466 Sq. Km and is approximately 32 Kilometers from Gujarat's state capital, Gandhinagar. Ahmedabad is split into two distinct sections. On the east bank of the Sabarmati lays the old city and the west side is the new city, which began to develop in the late 1800's during the British colonial rule. The urban form of the old city consists of a densely packed pol system, which consists of small walled neighborhoods each with their own distinct community.



Figure 3.2.1: The pols on the east of the Sabarmati



Map 3.2: Ahmedabad City Map

### Demographics

According to the 2011 Census, Ahmedabad City had approximately 5.5 million people, compared to the 3.5 million estimated in 2001. The population consists of 2.9 million males and 2.6 million females. The Census indicated that the population density is now 9,707 people per sq. km., as opposed to the 18,445 people per sq. km. in 2001. However, this variation is attributed to the expansion of the perimeter of the city from 190.84 Sq. Km. in 2001 to 466 sq. km. by 2011. Population growth for the decade was 26.61percent, which was faster than the 22.36percent growth rate from 1991 to 2001. Overall, the Ahmedabad Urban Agglomeration population constituted 11.94 percent of the total Gujarat population.

### Economy

The city of Ahmedabad is the economic engine of Gujarat that has experienced high growth rates and increasing productivity since the early 1990's. Historically, the textile industry was the primary driver of economic growth for the Ahmedabad City. With the decline of the textile industry in the 1970's and 1980's, Ahmedabad's economy was restructured and saw a large growth in the informal sector to approximately 75 percent. The informal sector is defined by employment categories such as daily wage laborers, construction

workers, rag pickers, street vendors, domestic workers, readymade garments workers, and factory workers in the outskirts of the city (Shriya Anand). The formal economy has seen a large sectorial shift with the growth of new industries, particularly the chemical and petrochemical industries. Of the 4,859 factories in Ahmedabad City, 29 percent are Chemical and Petrochemical plants, followed by 25 percent Engineering Products and 21 percent Metallurgy (Hirway & Shah, 2011). In addition, business and commerce, transportation and communication, construction activities and other services have grown tremendously in the last decade.



Figure 3.2.2: Informal Market

## Environment

Ahmedabad has a hot semi-arid climate that cycles through three seasons; a hot and dry summer, and a rainy and humid monsoon season that typically lasts from June to September and winter. Historically, there has been vast variation in annual rainfall resulting in torrential rains that

result in flooding of the areas rivers as well as droughts when the monsoon does not reach far west. With a high dependence on ground water and lack of perennial water sources, Ahmedabad City has developed and maintained extensive water supply infrastructure such as water retention ponds, reservoirs, dams, and intake wells. While some water bodies are natural, the AMC and the AUDA have worked to improve many of the water bodies by constructing percolating bore wells in the lakes in order to raise the underground water table, restore rainwater and recharge underground aquifers (H.A. Solanki; P.U. Verma, D.K. Chadawat, 2011) Nevertheless, the depletion of the water table at an annual rate of two to three meters. (Ahmedabad City Development Plan, 2003) continues to pose challenges for the availability of water as well as the quality. In addition, the lack of a comprehensive sewerage system has resulted in untreated industrial effluents and sewerage flowing into the River Sabarmati and contaminating ground water.

Air quality is also an increasing concern in Ahmedabad, as the number of two-wheelers and auto- rickshaws has escalated. It is estimated that vehicular pollution accounts for 60-70percent of the city's total pollution load (Ahmedabad City Development Plan, 2003). Air pollution in terms of parts per million, carbon dioxide and nitrogen dioxide have exceeded ambient levels in many street junctions throughout the city and suspended particulate matter (SPM) and respirable suspended particulate matter (RSPM) levels have been consistently high in industrial and residential areas (Gujarat Pollution Control Board) due to high volumes of dust suspension from un-surfaced road margins and vehicles that are non-compliant with exhaust standards. This is of particular concern to the rise in automobile ownership across the state.





Figure 3.2.3: Ahmedabad Transportation

## Water Resources

Map 11-1: Proposed Lake Development in Outer Periphery

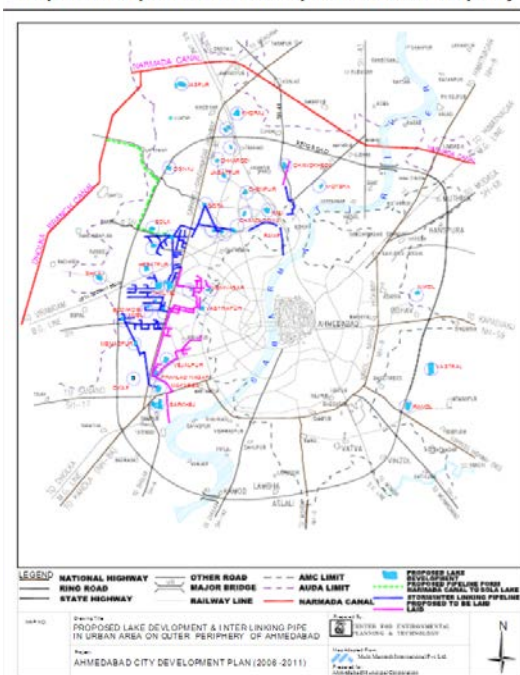


Figure 3.2.4. Lake Development Plan, Ahmedabad City Development Plan

Ahmedabad has many water bodies, both natural and man-made, dispersed around the city for collecting rainwater, irrigation, and to recharge ground water levels. The city has undergone a massive lake linking project in order to allow excess water to flow into other lakes until it reaches Sabarmati or the Gota-Gadhavé canal to be used for irrigation.

Over the many years, Ahmedabad has dealt with problems related to monsoons such as flooding and water logging. Furthermore, the water bodies, which are most affected by monsoons, have not been maintained and, in part, due to silt, have insufficient capacity to manage downpours.

Additionally, these water bodies have often dried up in summer, becoming dumping grounds, which has impaired the network when trash has blocked drainage pipes. Lastly, the storage limitations have also constrained the capacity of these water bodies to recharge the aquifers, which is a major part of the larger water resources plan for the city.

To reconcile these issues, since 2006, as prescribed in the City Development Plan, Ahmedabad has worked on a stormwater and water resources management plan to connect and develop the various water bodies in the west side of the city. Such a scheme utilizes water from the recently completed Narmada Canal to keep water in these tanks year-round. During rain events, when tanks overflow, the connected system ushers water down a gradient from the higher elevation tanks to the lower elevation tanks and eventually into the Sabarmati River. This plan helps to prevent flooding, while also maximizing the potential recharge throughout the city rather than limiting it to the specific catchment area. The potential recharge rate and capacity is increased through the inclusion of bore wells in the water bodies and the augmentation of the storage volume of the water bodies through dredging. As a part of the development scheme in the associated plan, the plan calls for slum resettlement to provided housing, greening of the waterways, and protection of the littoral areas (banks of the tanks).

## Institutional Amenities

Ahmedabad is known for its well-developed educational networks and facilities,

covering a range of schools for primary, secondary, and higher secondary education as well as many private and public colleges. In higher education, Ahmedabad is the leader in business education, with 22 schools of Business Management. It is also strong in social sciences, teaching schools, computer sciences, and law. Furthermore, Ahmedabad is known for its innovative and counter-culture institutions, such as CEPT University.

Healthcare in Ahmedabad is provided through a variety of institutions including public and private hospitals and medical colleges. There is a strong network of public medical services including hospitals, dispensaries, and maternity homes (Ahmedabad City Development Plan). AMC has a network of 60 medical institutions that provide free medical services for the urban poor. However there is not a strong presence of these facilities nearby slum populations. Lastly, there are approximately 100 parks in the city of Ahmedabad, with most of the open spaces existing in the form of gardens and playgrounds. Open spaces have been declining in recent years however, particularly as green belts and open green space have been converted to other urban uses.

### **3.3 Informal Settlements Ahmedabad: Slums and**

#### **Slum Populations**

In Ahmedabad, slum populations are designated into two predominant types: *chawls* and slums. *Chawls* are typically multi-storied concrete tenements that were first constructed for industrial workers. Slum areas typically refer to marginal areas of the city that are illegally occupied by migrants and other economically weaker sections, typically lacking adequate infrastructure, facilities, and basic amenities. In addition, slum developments are often found in low lying lands and vacant private or government land (Bhatt,

2003). Despite overall economic prosperity in Ahmedabad, slum populations are extensive in the city. AMC (2006) estimated there are approximately 1,000 slums in which over 40 percent of the population live in. The average household size is 4.6 people and the average household has lived within their respective slum territory for almost 19 years (Stanwix, 2009). Furthermore, it is estimated that approximately 60 percent of slum dwellers actually own their homes and about 40 percent pay rent which averages at 495 Indian rupees per month. In 2009, Stanwix found the average per capita monthly income of Ahmedabad slum dwellers to be 702 Rupees (USD \$13), which is above the national poverty line of 650 Rupees per month (USD \$12) (Stanwix, 2009).

#### **Ahmedabad's Response to Slums**

The approach of the AMC until the 1990s was one of tolerance towards informal settlements on public and private lands. It allowed activities such as hawking on public lands and did not enforce anti-poor legislations. During the mid-1990s, the AMC spent nearly one-third of its capital budget in improving the basic services and infrastructure in the slums of East Ahmedabad.

As Ahmedabad increasingly aims to attract transnational capital and gain international recognition for its progressive policies, the city's stance towards slum settlements is once again shifting away from one of tolerance. New urban development proposals, such as the Sabarmati Riverfront Development Project, affect a large section of slum dwellers who are living on the riverbank (an estimated 8,000 – 10,000 households), as evictions in the riverfront area are likely to increase (Shriya Anand).

The Slum Networking Program (SNP) was initiated by the AMC in 1995 to provide a

package of physical improvements and community development initiatives to slums in the city. Physical improvements include individual toilets and sewerage connections, storm water disposal, paved roads, street lighting and solid waste management. Community development initiatives include the formation of community based organizations, increasing access to primary health care and education, and support for income-generating activities.

The SNP was implemented as a partnership between the city government, the beneficiaries, NGOs and SEWA Bank, a community-based financial institution. SEWA Bank provided slum dwellers with a savings bank that, in contrast to most micro-financial institutions in India, was geared towards lending.

The program is based on the premise that services should only be provided where there is an expressed demand for them. Beneficiary slums are thus required to demonstrate their willingness to participate in the program by contributing a proportion of the costs. The program has achieved some success in improving the living conditions of the city's slum dwellers. The SNP has helped secure slum residents' tenure by ensuring that they are not evicted for ten years after completion of the program.

### **3.4 Urban Governance**

The City of Ahmedabad is governed by the AMC, created by state law in 1949. It is headed by a mayor and the municipal commissioner. Traditionally, the government has been responsible for providing and maintaining the city's infrastructure, including water supply, sewerage and stormwater drainage, construction and maintenance of roads, street-lighting, disease prevention and monitoring, solid and liquid waste disposal,

public transport, and development of parks and gardens. More recently, AMC has adopted programs for economic and social planning as well as poverty alleviation. Also, the city has been proactive in strategies to improve traffic conditions, air quality, and general quality of life and image of the city (Das & Takahashi, 2009).

Ahmedabad Urban Development Authority (AUDA) is another city governmental entity responsible for the creation and implementation of city plans through planning and construction of infrastructure. Generally, their authority includes the preparation of Town Planning Schemes (TPS), conduct surveys for the city Development Plan and TPS plans, guide and assist local government agencies in matters pertaining to development and land use, and control development in accordance with the Development Plan (Mohapatra, 2011). Their activity in the planning process as the primary authority for land use planning and development is described in the following section.

### **City Planning Process**

The state of Gujarat passed the Gujarat Urban Development and Town Planning Act of 1976 (GUDTP), which gives the authority to AMC and AUDA to carry out their city planning and development duties (Mohapatra, 2011). The city maintains a Development Plan, which is required by state law and is updated every ten years. The Development Plan is executed by smaller area plans, or Town Planning Schemes that vary in size of about 100-250 acres. The city prides itself on its unique development process referred to as "land pooling and readjustment." This strategy allows AUDA to give boundaries to tracts of land about 100 – 250 acres, referred to as a Town Planning Scheme (TPS) and design its new land use and infrastructure. This land is at the periphery of the city where



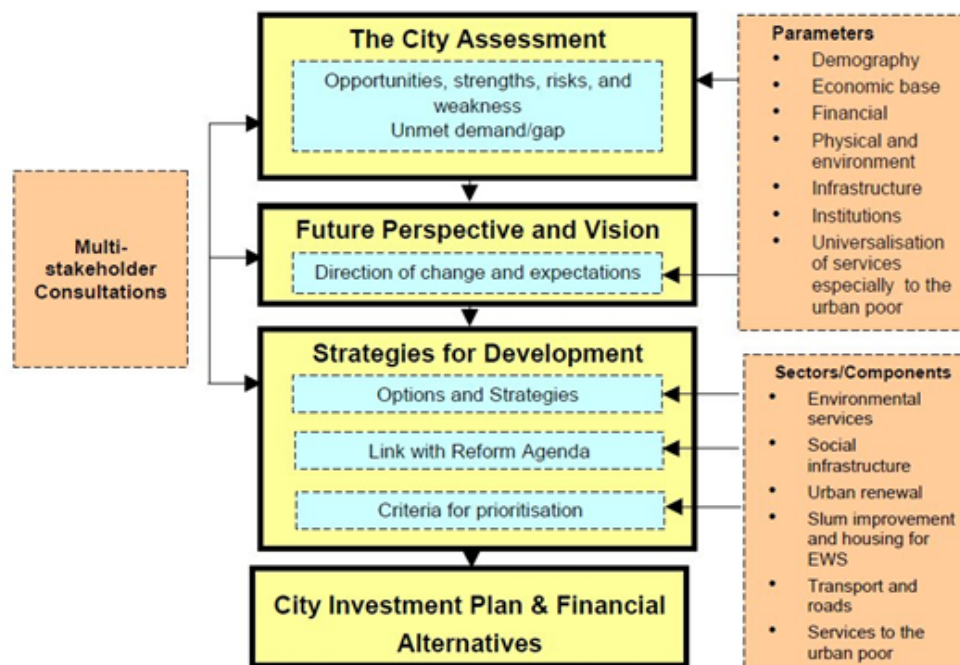
landowners agree to have their land given such infrastructure and land use designation. Those landowners pay betterment charges to help fund the construction; however they greatly benefit from appreciation in the value of their land once the infrastructure is in place. Typically, about 20-30 percent of the land is taken for roads and other amenities, and AUDA aims to take an equal amount of land from each landowner. The new design is proposed to the landowners for approval, then sent to the state of Gujarat for approval. Once approved by the state, the plan is again reviewed by the landowners for comment. Once AUDA receives their approval, AUDA can begin construction (Ballaney, 2008).

## City Development Plan

On a macro-level, AMC is authorized to create a slum redevelopment plan under the Gujarat Town Planning and Urban Development Act of 1976. General uses of the plan include developing new growth areas, zoning and rezoning, creating development controls and density regulations, developing city level road networks, and developing city level infrastructure.

The most recent City Development Plan is a comprehensive plan for the city of Ahmedabad created in 2003. This document presents a perspective of and vision for

Figure 3.4.1: Jawaharlal Nehru Urban Renewal Mission



## Existing Plans

The following is a brief summary of existing and proposed plans for the Ahmedabad area. This includes the City Development Plan, the Metro Rail Plan, and TP Scheme 38 which is the town planning scheme that includes the village and lake of Thaltej.

future development of the city. AMC and AUDA have the vision for a compact, integrated city with coherent urban form. In addition, they envision well-designed public and green open space which conserve nature and preserves heritage.

The process of preparing the City Development Plan began in 1999. A series

of consultations was conducted by AMC, AUDA, and the Government of Gujarat with various stakeholders that resulted in the City Development Strategy report in 2003, setting the stage for the plan. The planning process then followed the process outlined in the Jawaharlal Nehru Urban Renewal Mission and in Figure 3.4.2. The twelve chapter document profiles the city and addresses Environmental Services, Roads and Transportation, Urban Poor and Housing, Social Amenities, Cultural Heritage, Urban Environment, Municipal Finances and Financial Operating Plan, Urban Governance and then the overall vision for the city.

### TP Scheme 38

Town planning schemes are micro-level governing bodies to better assess conditions and needs at the local level. Ahmedabad is divided into these TP schemes, which consist of approximately 100 hectares. Some typical functions of these bodies include developing neighborhood level road networks, reconstituting land, building neighborhood level social and physical infrastructure, providing financing of neighborhood level infrastructure.

Thaltej falls into TP scheme number 38. Currently, no written document exists for the overall development of the scheme, however a map of the land uses and development plan was created in 1979 and modified as recently as 2003.

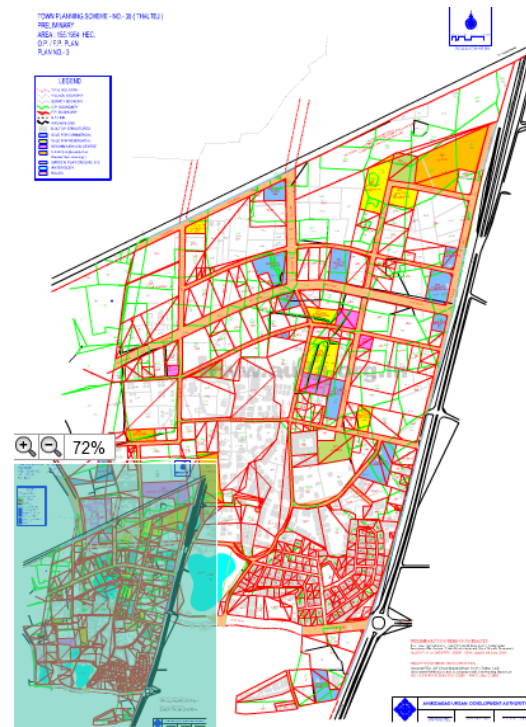


Figure 3.4.2: TP Scheme 38

### Metro Rail System Plan

In 2004, the Gujarat Infrastructure Development Board (GIDB) engaged the Delhi Metro Rail Corporation in order to prepare a detailed project report for a Metro Rail System in Ahmedabad. The MEGA Corporation was founded in 2010 in order to implement a metro rail project connecting Ahmedabad, the Ahmedabad Airport, and Gandhinagar. The current proposal consists of an elevated heavy rail system within the Ashram Rd right of way and an estimated 13 stations along the route. The goal is to have the entire project completed by 2015.

**Thalje Stop**

Legend:

- Exclusive Bus Corridor
- BRTS Mixed Service / FEEDER NETWORK
- Metro Rail
- Regional Rail Network

Thaltej Village:  
An Incremental Approach to Urban Encroachment | p.20

# 4 Thaltej Site Analysis and Overview

The site resides around Thaltej Lake, which is one of many lakes linked between the Narmada Canal and the Sabarmati River. As a part of the larger process, AUDA is seeking to redevelop the areas around several of these lakes to promote higher levels of development. These lakes present many environmental, social, and economic challenges ranging from poor water quality to illicit slums. This section discusses the current state of the site.

## 4.1 Physical Context of Thaltej

Thaltej Village is a recently annexed census town in the New West Zone of the City of Ahmedabad. The project site is directly north of the village. It comprises three water bodies and an assortment of supposedly formal and informal settlements in an area roughly 22 acres. The project boundaries include Shilej Road to the south,

Arham Bungalow Road to the west, the edge of current settlement development to the north, and Sardar Patel Marg and Thaltej Road to the east.

The adjacent neighborhoods are divided into four zones reflecting their direction in relation to the project site. Thaltej Village is to the south; Indira Awaas Yojana (IAY) housing is to the west, fallow/vacant farmland and Socially & Economically Weaker Section Housing (SEWSH) to the north, and bungalows, offices and the SG Mall and the Acropolis Mall to the east.

The combined boundaries of the project site and the west zone form a soft barrier or fictitious line that marks a significant shift in neighborhood character. The project area, which represents the site and the four zones, has several different neighborhood typologies within it, including: hutment, village, colony (suburban complex), and regional corridor.

## Building Typologies

- > **Hutment:** The hutment typology supports a wide range of development patterns from decidedly organic to highly structured, but which form in clusters. One can most easily recognize

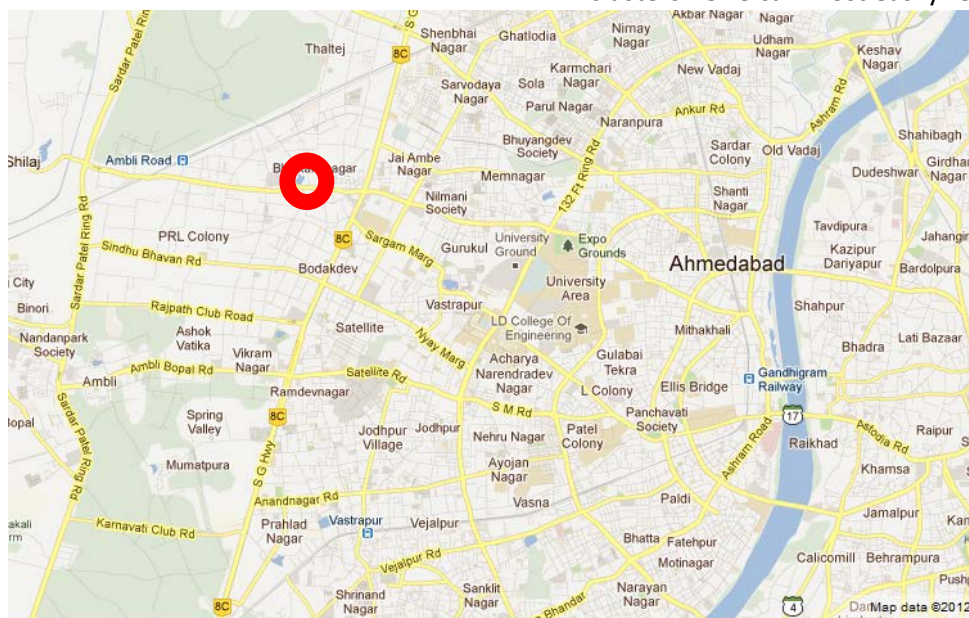


Figure 4.1.1: Thaltej Village Location Map



- and identify this typology through its distinct building type, materials, and density. The building type is most often a variant of a shack, which utilizes temporary and semi-permanent materials such as wood, corrugated metal, and brick. These buildings
- > ordinarily have small footprints of less than 500 square feet. Thus, even under circumstances in which they are detached structures, their clustering results in high densities.
  - > **Village:** The village typology supports a narrower range of development patterns from standard organic to visibly restructured organic. The second form refers to organic development that has encountered demolition of buildings to build vital infrastructure to provide government services like roads and sewers. The building type varies by the date in which the village developed, but usually is a multi-storied, attached structure, which utilize the most common building material in use during the period in which they were constructed. This is often wood or cement. While these structures are often multi-storied, the ground floor is often used as a workplace, which, along with somewhat larger footprints, limits the density compared with hutment typology.
  - > **Colony:** The colony typology supports a suburban or exurban development pattern with detached, planned real estate, curvilinear streets, and, occasionally, cul-de-sacs. In India, houses in this framework may be a part of a cooperative, similar to a condominium development in the United States, in which one purchases a share of a micro-neighborhood for the ownership or extended lease of a given property. The building type is typically a bungalow made of cement and clay.

Other characteristic features of this typology are the extensive tree coverage and the walled nature of the buildings with long setbacks, creating a compound-like environment.

- > **Regional Corridor:** The regional corridor typology does not support any specific form of development. Rather, it classifies the developments directly adjacent to a thoroughfare. Unlike the other three typologies, in this typology, the streets consistently pre-date the plan and construction of the buildings. The building type varies by land use, including standalone high-value real estate such as malls, offices, apartment complexes, and medium density industries, all of which are likely to use cement as a prime building material. The right of way is the most visible feature of this typology as it is much wider relative to other rights of way in the district. It may have wide sidewalks with increased tree coverage, though not to the same extent as in the colony typology, as well as common parking lots.

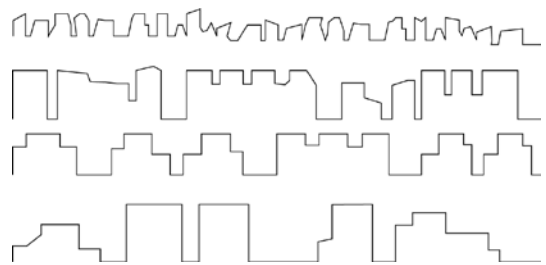


Figure 4.1.2. Building Typologies in order from top to bottom: Hutment, Village, Colony, Regional Corridor

## Environmental Conditions

Detailed topographic information was not available. With the available online data and the information gathered from on-site visits, we can surmise that the project area is relatively flat with only gradual changes in

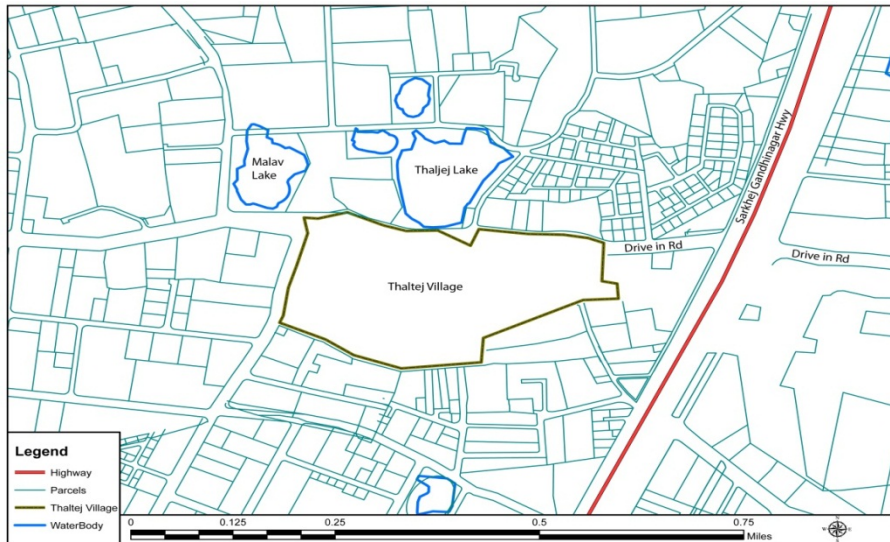


Figure 4.1.2: Thaltej Village Site

elevation. The water bodies account for the greatest variability, where the surrounding land slopes more steeply down into the these ponds. The water bodies are somewhat shallow; the smallest of the ponds is no greater than four feet deep.

The water bodies, or tanks, are contaminated cesspools at this time. They are stagnant; they lack buffers between settlements and their shores; residents use them as part of an open sewer system; and, they have much trash in them. Residents have connected open drains for wastewater to flow into these bodies, which does more

harm to the water quality, giving the tanks no opportunity to restore themselves under the conditions. The degradation of the tanks and the depleted oxygen levels are evident from the stench that wafts from them. As a result of such a state of affairs, these tanks do not have a utilitarian purpose for residents beyond waste collection. The water is unsuitable for consumption by humans and large animals, it also places stress on plants that need moderate to high amounts of oxygen.

Water hyacinth is one of the plants that thrives in the given conditions; however,



Figure 4.1.3Thaltej Lake

this plant provides ideal breeding grounds for mosquitoes, which carry various diseases, that can seriously affect local populations. As a result, the government employs workers to remove this plant from the water. While it provides natural filtration for the water, the risks associated with vector transmission are too great to ignore.

## 4.2 Social Context of Thaltej

### Housing

An important consideration for the study area is the occupation of the public housing just north of Thaltej Lake. This housing was built by the AMC for the Socially and Economically Weaker Section (SEWS), or

these four-story buildings are located just north of Thaltej Lake, which could significantly increase the population in the study area as new low income residents once the lottery is complete. This will put much more pressure on the immediate area for public infrastructure and facilities, such as schools and clinics. This is important to acknowledge as current residents in Thaltej Lake feel that they need improved access to such facilities.

Although many of Thaltej residents would quality, in terms of income, for public housing, most residents interviewed did not want to move into this housing because it does not fit the needs of the current lifestyle, especially in cases where families



Figure 4.2.1: Villagers in Thaltej

those people making less than 3,300 Rupees per month. According to a study, the year 2007 saw a shortage of 24.7 million housing units, including 21.8 million units needed for SEWS.

AMC has been constructing public housing units all over the city that, once all units are constructed, will be distributed to SEWS through a lottery. Approximately eight of

own livestock. Not having ground floor access is also a significant contributor to their resistance to participating in the lottery (Joshi and Sanga, 2009)

### Field Survey

Hutment residents have lived in the community for up to 30 years and have settled in areas just northwest and



immediately west of Thaltej lakes and surrounding the minor lakes in the site area. Many family members live together in one hutment, often multi-generational. Residents living in the hutments often work in the private, upper class residents living nearby or in the market and commercial area along Thaltej road. Many have livestock living on their property, including cattle that they keep for their milk. Their children go to public and private schools nearby. Residents were interviewed by CEPT students on questions regarding how long they have lived on the site, what their needs are, and how they feel about relocation. Residents were interviewed in the afternoon on weekdays. Responses were recorded by the American students as translated by the Indian students. Approximately twenty residents in the immediate area around Thaltej were surveyed. Conversations were often lengthy and summarized by the CEPT-student translators. Validity of the surveys cannot be confirmed by the American students.

## Ranking of Priorities

Surveying the Thaltej residents led to a ranking of their priorities.

### Private Toilets

Their first priority is to obtain private toilets that are linked to the city's sewer system. Some residents have their own private toilets from a previous government-led



Figure 4.2.3: Public Housing

program, however, many are unused because they are not hooked up to the sewer system. Also, some residents share one toilet between several families. A building housing public toilets provides toilets and some showers during specified hours of the day.



Figure 4.2.4: Private Toilet

### Public Water Taps

Residents' second priority is access to public water taps. Currently, about five families share a water tap that has running water for two hours of the day. A concern for some families is being able to collect and store enough water during the two hours to



Figure 4.2.2Waiting for Water at the Public Taps have access to water throughout the day. Some public water taps were found inoperable as part of a former government program that preceded the current water taps. It is unclear whether residents run out of potable water on any given day.



### **Public Schools and Health Clinics**

The third and fourth priorities for Thaltej residents are access to public schools and health clinics, respectively. A nearby school has full enrollment and Thaltej residents must send their children to a farther, private school. The distance and costs for the school are not ideal. Similarly, a health clinic exists in the area, but is too far for many residents to be easily accessible by their usual forms of transportation.

### **Recreational Use of Lake**

Both residents in the slum settlements and the residents living in private homes to the north of Thaltej lake have expressed the idea of repurposing the lake area as a recreational space for them and their families to visit.

### **Remain in their Homes**

Several of the hutment residents stated that they prefer to stay in their location and homes when asked if they were open to resettlement. AMC has been constructing multistory complexes for public housing for many years, and plans to place families in them through a lottery. A few of these buildings were constructed several years ago near the Thaltej lake site, and residents do not consider them a good home to transition to, even though they have private toilets. The structure of the building makes it difficult for families to live their lifestyle, especially in the case of families owning cattle or water buffalo. In addition, those spaces are smaller than hutment homes.

### **Retain Employment Capabilities**

In addition, resettlement of the residents may interrupt the pattern of formal and informal economies in the hutments. Many of the residents are employees of the neighboring private homes. Residents also drive auto rickshaws. And again, any economic value derived from livestock is threatened by moving to spaces that do not have ground-level access or sufficient space.

## **4.3 Governance in the Redevelopment of Thaltej**

### **AUDA**

The AUDA is responsible for designing and building new land plots, uses, and infrastructure. Thaltej is located at the periphery of the city, and AUDA is responsible for planning and implementing changes in city-led development and infrastructure for the Thaltej site.



**Figure 4.3.1: Vastrapur Redevelopment Project**

The approach we assume that AUDA is taking on the Thaltej Lake redevelopment have been largely shaped by a presentation given to the authors of this report by an AUDA employee during the two week program in Ahmedabad, as well as their previous work at Vastrapur Lake.

During the presentation, the AUDA representative expressed the desire to redevelop Thaltej Lake and the surrounding area in what has been interpreted as the highest and best use for that land. Their perspective reflects what Ahmedabad city needs as a whole, including the need for more open and recreational space and facilities. There is pressure from AUDA to redevelop the lake reflecting Vastrapur Lake, a development that has been successful from the city's perspective through the attraction of new investments including malls, residential high rises, and other economic activity.

The pilot project, Vastrapur Lake, was completed in 2003. Prior to Vastrapur's redevelopment, the site was comparable to Thaltej with hutments and slum dwellers occupying portions of the surrounding land.

In addition, the lake was severely polluted. As the city rapidly developed, AUDA determined that the lake would better be utilized as a recreation site with a walking trail, amphitheater, and some public park space. Through clean up and redevelopment, the original inhabitants of the area around the lake were relocated to 350 housing units built by AUDA. By relocating slum dwellers to new high rise living accommodations, AUDA was able to redevelop the lake and ultimately spur investment of new apartments, retail, and amenities in the surrounding area. This development process has become a model for AUDA as their preferred alternative to enhancing water bodies throughout the city.

### **Public Health**

Another concern for AUDA is public health. Thaltej Lake fails to meet public health standards. Open drains connected from homes to the lake result in fecal contamination. Solid waste is also present in the lake, despite the city's daily waste collection in the area. Water hyacinth blooms in the smaller lakes surrounding Thaltej, which the city pays the residents to

remove in order to prevent a habitat conducive to mosquito breeding.

### **Stormwater**

A final concern for the city is to maintain, and possibly augment, the stormwater retention and flooding mitigation characteristics of the lake. As mentioned previously, the lake functions to prevent flooding by diverting overflow into sequential lakes connected by underground pipes. The lake also serves to allow water to percolate into underground wells for future water supply.

### **Thaltej Panchayat**

The Thaltej *Panchayat* is the village's local self-government also known as a "*Gram Panchayat*." *Panchayat's* are set up in villages that have a population greater than 300. The *Panchayat* takes responsibility for many aspects of village life. While it varies from village to village, the primary activities include monitoring construction and repair of roads, keeping records of birth, deaths and marriages, looking after public health and hygiene, assisting in festivals and celebrations, organizing village meetings and providing education. Their primary funding source is through tax levied on buildings and/or open spaces throughout the village.

In the case of the "Thaltej Village" problem scenario, the perspective and goals of the Thaltej *Panchayat* were unable to be obtained. However, based on their responsibilities and organizational role, it would be assumed that the *Panchayat* would be accepting of an alternative that better the public health outcomes of the area, enhances the public facilities such as schools and toilets, and contributes to the cultural heritage and life of the villagers

# 5 Issues

Key issues raised by the proposed redevelopment of Thaltej Village by AUDA fall into three categories: Environmental Issues, Social Issues, and Economic Issues. Below, each of the issues is described. Particular consideration is given to potential controversy that may arise from a redevelopment-relocation strategy, as based on consultations; it seems that AUDA may already be committed to a particular decision or outcome similar to the Vastrapur lake redevelopment project.

## 5.1 Environmental Issues

All parties involved are and will be affected by changes to the environment, namely the water quality and how the lake improvements are handled. From a public health perspective, the cleaning of the lake affects the entire city as it is connected to other lakes in the city and the river. Also, it affects drinking water quality as the lake affects groundwater recharge, which affects the water supply in nearby wells. How this issue is handled is of broad concern.

The environmental issue is AUDA's primary entry point for the redevelopment project. Depending on the project details, and whether it includes slum relocation and high-profile redevelopment projects, and the nature and quality of the environmental improvements, this issue has the capacity to become controversial because people's lives may be disrupted and public dollars are being spent on environmental projects. An example of a controversial issue is that the environmental improvements may be seen as "bourgeois environmentalism" that is serving as an excuse to push out the poor while creating a recreational area for the middle class. Alternatives to lake clean-up without the displacement of the Thaltej residents might be useful to consider. The

communication efforts on behalf of AUDA will be important in addressing these concerns.

## 5.2 Social Issues

In this project, the social needs of the current Thaltej residents are weighed against the perceived needs of the surrounding neighborhoods and businesses. These needs are very different and conflicting, and have the potential to be controversial, depending on which types of redevelopment projects are prioritized and how they are presented to the public and those who will be affected. Participation is the only way to draw out how the social needs of the Thaltej villagers, unquestionably the heaviest affected by the project, can be mitigated. This is true in the case of simple questions such as how to provide water and sewer services or what type of community facilities are needed in this area, to what is the general lifestyle and employment pattern of this community so that relocation housing can best equip their lifestyles with the least disruption.

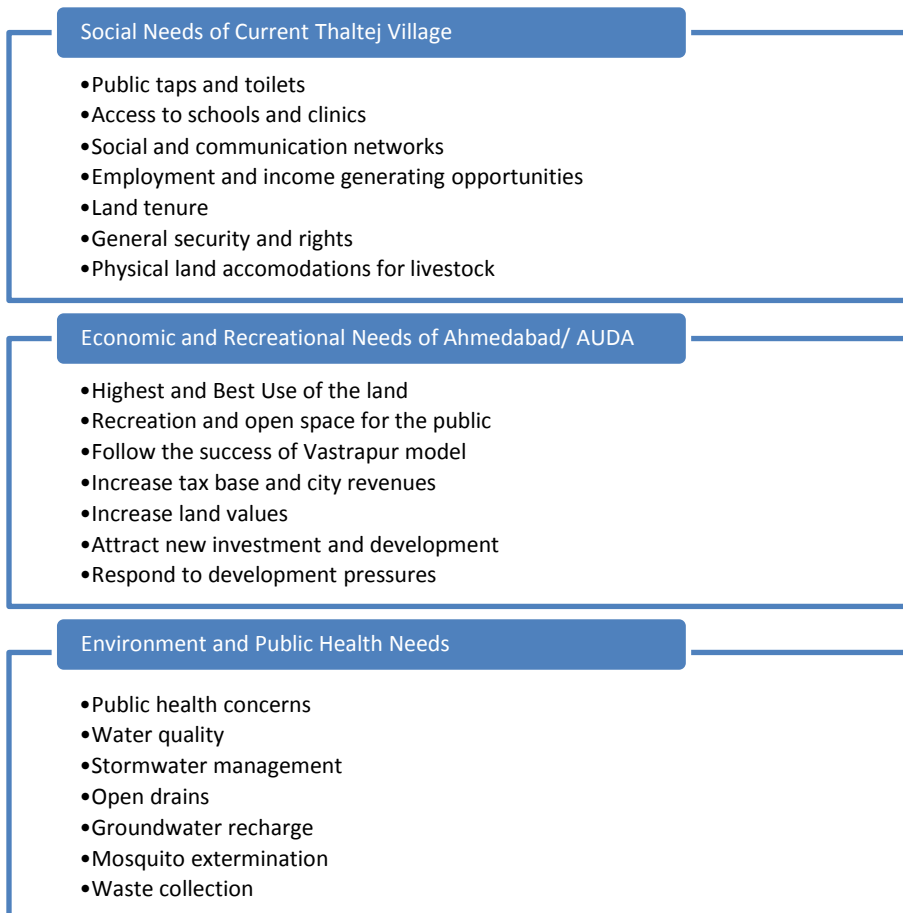
## 5.3 Economic Issues

The economic desires and needs of the City of Ahmedabad via AUDA are again weighed against the economic needs of the Thaltej villagers in considering this issue, as the possible uprooting of the community has the potential to disrupt social networks and informal employment opportunities, namely small businesses or workshops operated out of ground floors of building in the village to the keeping of livestock and selling their dried manure for fuel. Relocation could have very negative economic effects on the residents while those in the middle class in surrounding neighborhoods receive gains in increased property value as well as a recreational park and lake and the city receives increased tax dollars and private investments via developments who are attracted to the

redeveloped area. The way in which the economic needs of the Thaltej villagers are addressed in a relocation scenario has the potential to be controversial, as even though they may be the beneficiaries of expenditures in terms of housing, water and sewer services, their livelihoods may be jeopardized without proper participation programs and considerations on their economic means and needs. Economic needs also include social capital, as this can be key factors in quality of life and economic stability in informal sectors of the economy.

The key issues that require consideration in the scenarios that are developed and discussed in later chapters of this report are grouped in to three primary categories, as illustrated in Figure 5.3.1 below:

**Figure 5.3.1: Three Levels of Issues**



# 6 Case Studies

## Introduction

The following case studies are focused on slum redevelopment and upgrading projects from six different countries in the cities of Dar es Salaam, Mumbai, Bangalore, Kitale, Nairobi, Bangkok, Sao Paulo, and Fortaleza . The objective of this chapter is to extract key lessons learned and action items from a range of approaches to improving the conditions and infrastructure of informal settlements and embody the values of emerging approaches to slum improvement and upgrading amongst the competing forces of global urbanization and the rights to and need for tenure and services for slum populations. The key issues of social, environmental, and economic needs and goals served as a lens through which the case studies were chosen, as well as their direct applicability to Thaltej Village.

### 6.1 Guarapiranga Program: São Paulo, Brazil

This slum upgrading project was an attempt to deal with the pollution of the Guarapiranga reservoir, which provides water for over 3 million people in São Paulo that resulted from untreated sewage flowing directly into the reservoir from the informal settlements. The project began in 1993 and was completed in 2000, and including construction of infrastructure for wastewater collection and treatment, upgrading of squatter settlements and informal land subdivisions, and the development of a new legal and regulatory framework to manage the water catchment. Investment in the urban upgrading project alone was around \$207 million (Cities Alliance, 2008).

An integrated upgrading approach was taken, recognizing important interactions between wastewater collection and other infrastructure such as roads, storm drainage, and water supply. Upgrading of all the different types of infrastructure took place simultaneously, and was built while preserving the existing permanent structures as much as possible.



Figure 6.1.1: Pollution in the Guarapiranga Reservoir

## Objectives

1. Expand and improve water supply, sewerage, and wastewater treatment services.
2. Improve collection and disposal of solid waste.
3. Upgrade informal settlements and provide alternative housing solutions to people living in risk areas.
3. Protect and recover the quality of the environment through the creation of parks and reforestation.
5. Manage the basin through an appropriate legal and regulatory framework, an environmental protection and development plan, an information system, and the development of management capabilities.

## Key Lesson Learned

### Socio-Technical Support Teams

These teams were created by Diagonal Urbana, a private company hired for the purpose of public participation and outreach by the Sao Paulo municipality.



They provided ready access to the project for residents, as well as information on technical and programming issues, and served as an avenue for requests and complaints. They helped organize participation in information gathering and analysis, discussion of project alternatives, and programming of the physical works, staging hundreds of meetings of thematic and area-based groups in each settlement. They also helped negotiate contentious resettlement issues and organized the transfer of families to temporary shelters and, later, to their new homes. These firms decided to enlist a separate private company with the participatory planning and social mobilization skills required for working with communities in slum upgrading projects.

The technical support group, working in close coordination with the social workers and the construction firms, provided a bridge between the community and the design and construction process, helping find sound technical solutions to cater to community demand and concerns.

### Key Lesson Learned

#### **The new water sources law of 1997**

One of the primary results of the Guarapiranga program is the change in the legal instruments governing water catchments in São Paulo, the 1997 State Law of Water Sources, based on a different view of the correlation between water quality and land use.

Because the occupation of land took place in a water source area subject to the restrictions of the 1975 Law of Protection of Water Catchments, it was not possible for the project to make progress in regularizing land tenure until the broader legal constraints were removed. The new law acknowledges the existence of informal land occupation and is not based on rigid control of the use and occupation of the

land, as the old law was. The new policy allows for negotiation and participation. Now each municipality is able to decide and legislate on land use in such a way that in all sub-basins in the water catchment area.

The São Paulo municipality increased their focus on improving informal settlements, whereas in the beginning of the program, the focus was on sanitation, with little emphasis on upgrading low-income areas. This initial idea evolved into a comprehensive intervention that included infrastructure for water supply, drainage of wastewater and storm runoff, access roads, paving, and electricity supply as well as socio-technical support during construction, as well as the need for removals and relocation of some families (including temporary lodgings and substitution housing).

### Key Lesson Learned

#### **Community Upgrading**

Although environment upgrading was the entry point of the project, the informal settlement and the lack of infrastructure were the primary reasons for the reservoir degradation. That is why the program eventually focuses on these informal settlements. Rather than adopting a totally replacement strategy, which was preferred by AUDA, in Guarapiranga the settlement layout must be improved and the infrastructure built while preserving the existing structures as much as possible. Local residents continue to live and work in the area while the construction takes place. While this posed significant challenges and constraints on planners and engineers, it established a solid base on which the local residents were willing to participate and contribute to upgrade their own places.

### Key Lesson Learned

#### **Land Tenure Unresolved**

In the same vein, clear land tenure strengthened residents' sense of

community and security, which in turn increased their mobility in promoting the program. However, in reality the land tenure can neither be clarified easily nor delegated to the current low-income residents. It created a vicious circle, in that the unclear ownership impeded the progress of upgrading, which increased the insecurity of residents and hampering the local participation (Cities Alliance, 2008).

## Key Lesson Learned

### A New Planning and Management Unit

One of the innovative features of the project is the horizontal institutional arrangement, aiming at an integrated upgrading approach rather than a sectorial approach. Given the scale of the project, it provides a new management philosophy of using the territory as a unit of planning and management.

## Outcomes

- > The program benefitted 250,000 inhabitants of Guarapiranga, as well as the city as a whole.
- > The residents of the informal settlements began to feel like ordinary citizens and developed increased self-esteem due to the new water, sewer, transportation, drainage, and mail services.
- > Stimulated residents' economic investment in their community.
- > In areas with better community organization, improvements stimulated collective investments in public areas and common facilities.
- > Change in the legal instruments governing the management of water catchments in the state of São Paulo
- > The new legal and institutional framework established the State System of Water Resources, which in turn created the Committee of the Alto

Tiête Basin, based on the success of the management of the Guarapiranga program committee, with representatives from universities, professional organizations, nongovernmental organizations (NGOs), and community entities.

## 6.2 Baan Mankong (Secure Housing) Program, Thailand

Baan Mankong was created in 2003 by the Thai government as a way to support community-led slum upgrading in low income urban and rural communities. The government's goal was to providing secure housing to one million poor households within five years. The program is based on the provision of housing loans and infrastructure support to communities and networks of communities who then take the lead on managing the upgrading projects themselves. The Baan Mankong program is administered by a nonprofit organization whose goal is to build a strong societal base using the collective power of civil groups and community organizations (Boonyabancha, 2005).



Figure 6.2.1.: New Baan Mankong Housing

## Objectives

- > Improve the human spirit;
- > Increase awareness of the environment and/or address climate change;
- > Respond to our growing need for clean water, power, shelter, healthcare, education; and



- > Build community capacities for self-development, create information sharing networks on local, national and international scale.

## Key Lesson Learned

### **Pre-fabricated, subsidized flats**

Pre-fabricated, subsidized flats sold Through the Baan Ua Arthorn Program, the National Housing Authority of Thailand designs, constructs and sells ready-to-occupy flats and houses at subsidized rates to lower-income applicants on a "rent-to-own" basis.

## Key Lesson Learned

### **Subsidies, housing loans and tenure negotiation**

Baan Mankong Collective Housing Program channels government funds, in the form of infrastructure subsidies and soft housing loans, directly to poor communities. Through local collaborations for land tenure security negotiations and arrangements, communities plan and carry out improvements to their housing, infrastructure, and environment, and manage their finances collectively for all aspects of development.

The Baan Mankong Program encourages existing slum communities to form co-ops and develop their housing in a collective way; each participating community would end up having a collective land title. This method is designed to discourage speculators from buying off individual housing units from the poor and selling them out to higher income groups. Collective housing provides the security for low-income families so that they can have access to jobs in the city - usually as day laborers and street vendors - and where they can have the opportunity to get out of poverty (DiNino, Guarabedian, Ossa, and Smith 2006).

## Outcome

Upgrading projects in 1,010 communities are either finished or underway in 226 towns and cities, in 69 of the country's 76 provinces, involving 54,000 households (Boonyabancha, 2005).

## 6.3 Klong Tuey, Bangkok, Thailand

Klong Toey slum of Bangkok, Thailand, situated on land owned by the Port Authority of Thailand, established in the early 1950's, now with 80,000 residents, the largest in the city.

The Duang Prateep Foundation (DPF), an NGO founded in 1978 to improve conditions in the Kong Toey slum, develops programs that focus on community development, education, and improving general well-being of residents. The issue of land tenure has also been addressed, and DPF has acted as the voice of the residents by mediating between landowners and residents. They have helped structure a process of redevelopment to assist the community in developing a secure land tenure agreement.



6.3.2: DPF-sponsored Kindergarten

## Key Lesson Learned

### **Land Sharing**

People living on the land condense their housing into a smaller section of the area so that the owner of the land can use the rest of the property for another purpose. Part of

the population could be relocated into another area of the community, and at the same time, the existing communities can be redeveloped to accommodate the reduction of available land (DiNino, Guarabedian, Ossa, and Smith 2006).

#### **5 features of a land sharing scheme:**

- > community organization
- > land sharing agreement
- > densification
- > reconstruction
- > capital investment

The land sharing scheme is dependent on community organization and community investment in order to succeed in preventing destructive consequences of redevelopment from occurring, which include the erosion of social networks and informal job markets. Lessons from around the world on utilizing the unity of the community as a benefit that opens opportunities for alternatives to relocation are reviewed, as are reasons for resisting relocation and the importance of social networks.

### **Key Lesson Learned**

#### **Criteria for success and failure of tenure negotiation**

- > Encourage the participation of the community and developing strong leadership;
- > Secure land tenure improves the likeliness of investment and maintenance of the property by the residents;
- > Develop financial stability within the community is important to maintain improvement projects;
- > Establish a cooperative is useful, and community must be educated on the benefits of participating and why it is important;
- > Partner with outside organizations or NGOs in order to devise a way to

provide healthcare and social services to slum communities; and

- > Present a well-structured and organized community to the land-owner: conceptualizing the community as a low-income community rather than a slum (DiNino, Guarabedian, Ossa, and Smith 2006).

### **6.4 Paraisópolis, São Paulo, Brazil**

Paraisópolis is an informal community in São Paulo, Brazil that is considered an international success story for social inclusion of informal settlements. Like many informal settlements, it lacked many municipal services and infrastructure until recent efforts. It is a high-profile area, as it is surrounded by more affluent neighborhoods that are a source of employment for Paraisópolis' residents. It has become a target of the Brazilian government's social policy, even a showpiece, as it is central and accessible to visitors, officials and politicians (Bueno & Sedeh, 2010).

### **Key Lesson Learned**

#### **Policy Toolkit**

Official Brazilian policy shifted in the 1980s toward slum upgrading instead of redevelopment and relocation. In 2001, it enacted a statute requiring cities to have master plans and created a set of tools that municipalities can use to control land transfer and assure legal tenure for tenants. One of the most useful is the "zone of special interest" which formally recognizes the existence of informal slums and qualifies them for social services. Another tool authorizes joint citizen-government management councils.

### **Key Lesson Learned**

#### **Citizen-Government Collaboration**

In 1994, a Multi-Stakeholder Forum was formed to integrate social programs in the

favela, adhering to the guiding principal of citizen-government collaborative decision-making. In a similar vein, in 2004, a Steering Committee was created to oversee the upgrading of the slum. In 2005, the municipality committed US \$10 million to the program.

## Key Lesson Learned

### Two Option Program

In 2006, the program began to offer two options to the original land owners: donate the land to the municipality (thus avoiding any taxes owed) or pay the outstanding urban land taxes and receive a certificate of permission for construction. In the first case, the municipality gives a certificate of ownership to the occupant of the property.

## Key Lesson Learned

### Replicable Phasing Approach

The project was meant to develop a replicable approach to upgrading other favelas in the city. In the first phase, sanitation and emergency systems were put in place, removing homes at risk from collapse, flooding or mudslides. Paved roads followed, along with stream channels, street and alley improvements and new drainage systems, after which recreational areas and a linear park were developed.



6.4.1: New recreational facilities in Paraisópolis, Sao Paulo

## Key Lesson Learned

### Housing, Education, Retail

The housing authority then helped build 2,500 new housing units inside the favela, which were ready for occupancy in 2008. The same year, a 2,800-capacity educational center was opened. Following the municipality's investments, a well-known furniture and appliances retailer, Casa Bahia, built the first to be opened in a favela.

## 6.5 Hanna Nassif Community Managed Settlement Upgrading Project, Dar es Salaam, Tanzania

The Hanna Nassif settlement is located in Dar es Salaam, Tanzania, 4 km from the city center. In 1994 the settlement had a population of 19,000 people. Prior to the project the area experienced flooding due to absence of drainage facilities. It lacked services such as solid waste collection facilities, paved roads, water supply and human wastes disposal facilities.

For years, several upgrading programs active in the city originally planned for Hanna Nassif, did not reach or somehow had failed the settlement and were not enacted, mostly due to funding restraints. This provoked a self-led upgrading project in the community. The project was able to mobilize members of the community for the creation of community assets.

## Objective

The concept of the project was to empower the community to create and develop its own infrastructure with the assistance from donor agencies.

## Key Lesson Learned

- > Establish a pilot project on community-based employment-that would implement intensive storm water drainage infrastructure upgrades;

- > Develop a support mechanism for community-based initiatives in unplanned settlements involving a network of community volunteers.

## Outcomes

- > Construction of a functioning and maintainable storm water and other basic infrastructure service
- > Job creation of 24,430 work days: 65percent man-days and 35percent women-days.
- > Successful maintenance of drains and development of training material and training of selected community workers.
- > Establishment of women's group (occurred organically and not as a planned element of the project) which has been cleaning the drains.
- > Establishment of a Community Development Committee (CDC) for identifying and constructing their own priority infrastructure services.
- > A series of seminars and workshops that provided training to technical working groups, the CDC and staff from the Dar es Salaam City Commission on the Hanna Nassif project for duplication.

## 6.6 Mumbai Slum Sanitation Program, Mumbai, India

The Municipal Corporation of Brihan (Greater) Mumbai (MCBM) implemented the World Bank-assisted Slum Sanitation Program (SSP) as a part of the Mumbai Sewage Disposal Project (MSDP) that commenced in 1995. The program was targeted at about one million slum dwellers

(approximately 20 percent of the total Mumbai slum population) living on municipal land at about 10 percent of the MSDP project cost (approximately 13.2 billion Rupees or U.S. \$295.6 million). Under SSP, about 330 community toilet blocks (CTBs) with more than 5,100 toilet seats were constructed and handed over to community groups to use and maintain. (The World Bank, 2006).



6.5.1.: Impacts of Slum Sanitation Program

## Key Lesson Learned

### Active Involvement of Slum Communities

The program demonstrated the successful impact of a participatory, demand-responsive approach. Slum communities were involved in the project implementation right from the planning stage. They would take an active part in planning including site selection and toilet block design<sup>1</sup>. Mobilized by NGOs, slum communities had more chance to express what they want in terms of provision of sanitation system and thus were more enthusiastic in supporting the project.

## Key Lesson Learned

### Sustainability of the Program

In each slum settlement a CBO (community based organization) was formed and



registered as a Trust or a Society, which bear the responsibility of enabling local community processes, supervising construction and taking full charge of O&M management of local sanitation services and assets (The World Bank, 2006). Because the slum communities were highly engaged in the construction and provision of these sanitation devices on their behalf, they would like to pay monthly fees for all expenses related to the upkeep of the toilet blocks including water and electricity charges. MCBM is responsible for the major repairmen, while CBOs carry out all minor repairs.

## Key Lesson Learned

### Experiment on Public Land

This pilot program was operated on MCBM-owned land. A No Objection Certificate was required from the relevant ward office of the MCBM, which would certify that the land was not earmarked for alternate use in development plans and that was possible to extend water and drainage facilities to the slum (The World Bank, 2006). There are surely expected difficulties when the program is to be applied in larger area, where agreements with Government of India agencies and private land-owners are necessary. Nevertheless, AUDA can also experiment their innovative idea first in their publicly owned land around Thaltej Lake. By this way a role model can be easily established if the idea does really work.

## 6.7 Privatization of the Lakes, Bangalore, India

Bangalore is famous for its comfortable climate, partly because of the impact of the lakes on the microclimate. These lakes not only serve the function of meeting water requirements of the populace, be it for drinking and household uses, but also host a wide variety of flora and fauna, especially birds. Established in 2002, the Lake

Development Authority (LDA) was set up and leases out 60 tanks in public-private partnerships that would turn these traditional commons into amusement parks and commercial spaces with closed access. Two factors drove this trend of privatization. On the one hand, large number of public agencies had interest and responsibility of maintenance of those lakes, leading to the complex of management and departments passing the buck. On the other, an overall poor management of the economy in India made privatization an attractive and innovative solution to most capital shortage problems. When there were no efficient ways of preventing the degradation of environment, leasing out the lakes became a strategy to keep their survival. However, these transactions were finally banned in 2008.



6.7.1.: Citizen protest against lake privatization

## Key Lesson Learned

### Abuses of Public Goods

Lake in Bangalore is one kind of particular public goods in that the entire populace of the city benefit from its function and even existence. In many lakes, residents around the lakes use the waters for purposes such as drinking, for household purposes or for livelihood activities such as agriculture, livestock, fishing, washing, etc. When they were leased out for exclusive commercial use, residents depending on the lakes for livelihood were banned from accessing the traditional uses.

## Key Lesson Learned

### Damage to the natural function of Lake

From an environmental perspective, lakes provide various benefits that include influencing the microclimate, flood control, encouraging bio-diversity and replenishing groundwater. After the privatization and commercial construction, these functions were intervened and ruined. For example, a natural shoreline and presence of weeds were fundamental for birds' habitation. Newly constructed building and infrastructure along the shoreline made it no more available for bird species to nest upon.

## 6.8 Lake Baringo Community-Based Land and Water Management Project, Lake Baringo, Kenya

The Lake Baringo Community-Based Lands and Water Management Project was developed by UNEP (United Nations Environment Programme) and funded by GEP (Global Environment Facility). It was designed to strengthen the capacity of communities in the lake catchment area in sustainable resource management, through the demonstration of improved land and water management techniques, and to preserve biodiversity. Also, the project contributed to improve livelihoods of populations in the area by promoting alternative income-generation activities designed to provide employment and reduce pressure on land and water resources (Omwega and Norgbey, 2004).

## Key Lesson Learned

### Awareness Creation

Increasing awareness of environment protection and sustainable utilization among local communities is a key strategy used in this project. The project organized various activities to expose residents to environmental education, such as showing videos by television set and generator,

holding eco-tourism that showed demonstrations of best land-use practices, and hosting public meeting. Besides, the project also raised the awareness in Baringo County Council, a key player in the conservation of natural resources in the district. By ways of facilitating workshop and developing eco-tourism, they can strengthen the participation of various stakeholders as well as enhance the capacity of managing environmental project.

## 6.9 Employment Creation Through Participatory Planning, Kitale, Kenya

The Building in Partnership: Participatory Urban Planning (BIP:PUP) project was implemented in Kitale, Kenya. This is a city of about 220,000 people, and, due to rapid growth, two-thirds of the population lives in slums without access to municipal infrastructure services. The goal of the project was to enhance the effectiveness of city and municipal planning and management, with a view to addressing some of the institutional inadequacies and capacity deficiencies of urban local authorities. It also had the goal of testing whether the creation of formal and informal partnerships between public, private, NGO, and community sectors could work together to address the needs of slum dwellers (Majale, 2007).

The project took place between April 2001 and March 2004. It focused on three communities: Kipsongo, a settlement of 4,000 people, Shimo La Tewa, a settlement of 3,500, and Tuwan, a settlement of 65,000. It focused on slum upgrading for potential employment and local economic development. Improvement of infrastructure through training and hiring slum dwellers as workers was the main strategy of the project. Infrastructure projects were identified by local slum communities, then partners were recruited

to help implement the projects, in conjunction with the communities. Projects focused on installing or improving basic infrastructure and sanitation facilities (Majale, 2007).



6.9.1.: Infrastructure improvement and job training

## Key Lesson Learned

### Local Job Creation Makes a Difference

Given the capital inflows involved, even a minor shift toward more employment-intensive technology option in infrastructure investment can have a major impact on aggregate employment creation and the lives of slum dwellers.

## Key Lessons Learned

### Sustainable Slum Development

- > Promote good urban governance systems
- > Establish enabling institutional frameworks involving all partners
- > Encourage initiatives of slum-dwellers and recognize the role of women
- > Ensure secure tenure, consolidate occupancy rights and regularize informal settlements
- > Involve tenants and owners in finding solutions prioritizing collective interests
- > Adopt an incremental approach to upgrading

- > Associate municipal finance, cross-subsidies, and beneficiary contributions to ensure financial viability
- > Design and negotiate relocation plans only when absolutely necessary
- > Combine slum upgrading with employment generation

## 6.10 Microenterprises, Nairobi, Kenya

This case study was an investigation of small businesses of the sort that could be created from microfinance are impacted by access to infrastructure and services. These small businesses are called microenterprises, and are owned by households that are more likely to be poor, but are also more stable or longer-term residents in settlements with enabling infrastructure and have access to credit. Microenterprise ownership substantially decreases a household's likelihood of being poor (Gulyani, 2010).

The study found several success indicators for microenterprise success. The business did better if the owners extended their sales area beyond their immediate settlement, and if they worked in certain sectors relative to others. The study also found that living conditions created "enabling environments." That is, the longer the business owners stayed in their settlements was an indicator of more business success. Access to electricity, improved services and providing means to tenure of land were also indicators of success (Gulyani, 2010).

## Key Lesson Learned

### The Downside of Relocation

Programs that focus on relocating people to better housing without acknowledging the links between settlements and enterprises are likely to cause serious damage to the fragile economic base of slum households.



## 6.11 Urban Agriculture, Fortaleza, Brazil

Fortaleza is the capital of Ceara, a coastal province in Brazil. The town is economically depressed. About 70percent of families earn monthly incomes of less than US \$150, and hunger is rampant. Starting in 1992, a cooperative program funded by the Ceara Government and the European Union called “Communities” brought together a number of local stakeholders to develop self-reliant urban neighborhoods through backyard and community gardening, small animal husbandry, and fruit-tree planting for economic, health and micro-climatic benefits (Vasconcelos, 1999).



6.11.1.: Urban Agriculture in Brazil

The successes of the first program lead to the creation of a second project, which created a series of pilot projects. These projects were located in peri-urban regions and included cages, vegetables, fruit trees, medicinal gardens, and production of herbal remedies. The group worked with local people and provided training and workshops, supported by technicians and students from other institutions. Of key interest were populations of women and young people. In particular, women were recruited to work with the community medicine garden, and received training from a pharmacist benefits (Vasconcelos, 1999).

## Key Lesson Learned

### Popularity of Program

The projects were very successful, and generated demand for similar projects. One group raised enough money to start their own laboratory for medicinal plants, as well as a therapeutic massage center. The targeted groups of women and youths felt more empowered by participating in the program.

### Importance of Partnerships

The success of this program depended on successful working relationships between NGO's, local governments, and academic institutions.

# 7 Public Participation

## Introduction

The purpose of this chapter is to outline a set of public participation activities or techniques that may be utilized in some capacity by AUDA in engaging the residents of Thaltej Village, residents of nearby neighborhoods, officials, and other key stakeholders in shaping any redevelopment project scenario that may occur, as well as offer those groups some level of input on what, if any, environmental remediation projects, infrastructure upgrades or community services and programs that are developed as part of the larger redevelopment.

It is important to engage the residents of Thaltej Village in the project process, regardless of the specific course of action that is pursued by AUDA. This position is based on international case studies and research referenced in Chapter 4, which overwhelmingly illustrated that in slum upgrading projects and/or slum relocation projects, the success of the project is dependent on the participation of the slum dwellers. If they are not consulted in relocation, they may not accept the new housing as it does not meet their needs or they were not prepared for the relocation or felt they did not have a say in the outcome. In an upgrade scenario, prioritizing which services are the most needed in the community, as well as developing programs that utilize and recruit local labor and buy-in can only be achieved through public participation. Additionally, participation and local investment in the project can evolve into a long-lasting effort to promote awareness and prevention of activities that lead to continuous pollution or degradation of the lake.

Assumptions about the effects on the community of a redevelopment of Thaltej Lake are informed by the redevelopment of Vastrapur Lake, completed in 2003. Vastrapur, before redevelopment, was similar to Thaltej Village, as it was surrounded by an informal settlement known as Vastrapur Village. The lake was polluted, and through the clean-up and redevelopment, the original inhabitants of the area around the lake were relocated to 350 housing units built by AUDA. Today, as a result of redevelopment, the site serves as a park and recreation area with an amusement park, jogging track, public garden and is serviced by municipal water and sewer, serving the occupants of nearby apartment towers and the city as a whole in terms of water quality and succeeding in attracting new developments to the area .

According to AUDA, in the case of Vastrapur, 70 percent of the project cost was spent on relocation and rehabilitation of slum dwellers. Thaltej Lake is included in the second phase of the Comprehensive Lake Redevelopment Project. Similar to Vastrapur, AUDA wishes to address the environmental conditions of the lake by providing sanitation services to the area, as well as use the opportunity to create public green space and attract private investments, thus increasing the land value and taxes. If it can be assumed that, in a relocation scenario, 70 percent of the project cost in Thaltej village will be spent on relocation and rehabilitation of slum dwellers, as in Vastrapur, it is important to ensure the success of the relocation.

## 7.1 Organization of Public Participation Tools

The following Chapter 8 will introduce four separate scenarios of varying scales of intensity. The public participation program discussed in this chapter is designed to provide a toolkit that can be used to some degree in each scenario. Figure 7.1.1 below

lists each of the public participation activities, indicating whether they are ongoing or directly apply to one or more of the scenarios. If the four scenarios are considered linear steps or building blocks on a single timeline, then the public participation program might be

implemented as an element of each scenario, building to the completion of the project. Additionally, the strategies and steps can also stand alone as separate pieces of the scenarios.

**Figure 7.1.1: Public Participation Toolkit**

Public Involvement Activity	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Notes
<b>TIME:</b> 					
<b>KEY:</b> • Landmark Activity    •• Ongoing Activity					
Define Project Management Team, Stakeholders and Advisory Board	•				Better to do in the beginning
Individual Groups Meetings	•	•	•	•	Occur throughout Project
Project Overview Presentations	•	•	•	•	Occur throughout Project
Thaltej Community Assessment and Area Surveys	•	•	•	•	Can be utilized for each scenario but are needed early on
Opening of Thaltej Community Info Center		•			Fits with Scenario 2 (see Ch.8)
Community Leadership Training Program		•	•	•	Fits with Scenario 2-3 but has benefits for 4 also (see Ch. 8)
Present Community Analysis to AUDA			•	•	Most potential negative impact occurs in Scenario 3-4
Presentation of Alternatives to community			•	•	Intensive redevelopment/ change occurs in Scenario 3-4
Impact Evaluation Community Workshops		•	•	•	Community will need education on Scenarios 3-4
Identify/Develop Mitigation Tools			•	•	Mitigation more necessary in Scenario 3-4
Community Education	•	•	•	•	Community general education throughout
Feedback Presentation to AUDA and Mitigation Tool Recommendations				•	Feedback on relocation alternatives

## 7.2 Preliminary Consultation

Information on the existing conditions and context of Thaltej Village will need to be collected. The best methods to obtain this information should be devised by the organization administering the public participation program. Strategies could include door-to-door interviews with the village residents, site visits and window surveys, existing data collection analysis, mapping analyses, and conversations and correspondence with community leaders, city officials, CEPT, AUDA, etc. This information will be essential in any scenario that attempts to service, upgrade or redevelop the area.

Additionally, information on the characteristics of all interested groups should be collected to inform the process so that any project might take the needs of the larger community into account. The list of stakeholders should at a minimum include:

- > Thaltej *Panchayat*
- > Thaltej Village residents
- > Neighboring communities
- > Neighboring business community
- > AUDA
- > AMC

Additionally, advice in the upgrading, servicing, or redevelopment of slum areas might be solicited by brining one or more of the following groups to the table as a stakeholder or advisory board member.

- > Gujarat Mahila Housing SEWA Trust
- > CEPT University
- > SAATH – Initiatives for Equity in Development
- > Residents of the City of Ahmedabad
- > Gujarat Centre for Environment Education (CEE)

### 7.2.1 Level of Interest

The expected level of interest of each of the stakeholders is assessed below.

#### Highest Interest

##### **Thaltej Panchayat and Thaltej Village residents**

The potential delivery or upgrading of city services or any developments, especially relocation of hutment dwellers from the site, should spark tremendous interest from the *Panchayat* and the village residents, as informal interviews with the residents indicated. In a community-centered redevelopment, the potential upgrading and delivery of sewer and water services to the area would likely be better designed around input from the community in order to shape the services to best meet their needs. Also, the prioritization of the provision of housing, schools, clinics, or other community resources represents vital feedback from the community.

##### **AUDA and AMC**

As the lead authorities initiating the project, AUDA and AMC have interest in assuring the success of the project in terms of their goals of environmental remediation and economic development, while providing improved living conditions to current residents. It is also in the interest of these two entities to minimize negative public perceptions of the project, therefore significant interest in minimizing controversy is expected. Public participation could be effective in maximizing the success of any project while helping to inform the mitigation of negative impacts.

#### Significant Interest

##### **Neighboring residential and business community**

Neighboring communities may be interested in the opportunities that lake revitalization create for them, namely in access to new recreational features and

construction of new retail and housing developments. Their perceived potential and relative desire to influence re-development project outcomes that positively affect their quality of life is likely to create interest in the project.

#### **SEWA**

As a previous partner with AMC during the SNP, SEWA provided services to slum communities, such as development, surveys, design, and providing individual toilets. SEWA would be an expert advisor as part of an advisory board or stakeholder member, or possibly in the role of public participation facilitator.

#### **SAATH**

SAATH, as an organization that creates public, private and citizen partnerships to transform slums into equitable living environments, may be interested in helping to shape partnerships between the municipality and the community during the redevelopment project, as well as offering expertise in this area.

### **Some Interest**

#### **CEPT**

As the leading urban design and planning school in India, coupled with its location in west Ahmedabad, CEPT University's interest in the project is evinced in its studio projects that have focused on studying and contributing to the ongoing development of the Comprehensive Lake Redevelopment Project, specifically, its unfolding at Vastrapur Lake.

#### **CEE**

CEE, an international organization, has been involved in the water conservation and sanitation in India since 1986, with a focus on community participation in planning, monitoring, constructing, operating and maintaining and community-government interface. CEE also engages in education efforts over the importance of awareness of

water care, sanitation and hygiene that target women and children. Secondly, CEE is engaged in facilitating NGO and community initiatives, as well as in working with school systems, and would likely be an invaluable consultant in this program. The organization's interest would likely have to be sought out through the public participation program rather than it coming to the table independently. But considering the linkages between their mission and the project, it is expected that CEE would have some interest.

### **7.3 Program Management**

It is recommended that management of the Thaltej Village Project's Public Participation Program be contracted to an independent non-governmental entity. For the purposes of this report, the organizations SEWA and SAATH are used as an example of the type of potential program partner that may fill this role.

The public participation program could be conducted independently by this organization, under a contracted agreement with AUDA. AUDA could interact with SEWA/SAATH through an advisory board, which should include one representative from AUDA and one representative from each of the identified stakeholder groups. SAATH should address the issues and the areas where conflict is perceived as a top priority of the program. The main task of SEWA/SAATH should be to deliver recommendations to AUDA on the project based on public participation program outcomes. Additionally, SEWA/SAATH should work to establish a community support organization that incorporates local leadership into its programming so that the organization and information sharing can continue long after the project is complete in order to support programming that may be implemented as part of the project, such as work-share networks or a clinic. The perspective from which the NGO should lead the program should be guided by

established Guiding Principles that seek to address the issues and conflicts previously outlined in Chapter 5.

### Guiding Principles

The following guiding principles may be incorporated into the public participation program in any redevelopment scenario in order to keep negative impacts to the slum dwellers to a minimum.

- > Prioritize solutions to the issues according to what constitutes the best outcome for all stakeholder groups equally based on that group's input and feedback as a result of participation efforts and engagement.
- > Identify project elements that value equity across different socio-economic groups, recognizing the essential nature of socio-economic diversity in communities and the importance of minimizing negative social impacts on the Thaltej villagers.
- > Develop participation program that considers the ability of each stakeholder group to participate.
- > Develop alternatives that balance the needs of different stakeholders through the range of equitable solutions.
- > Integrate stakeholder objectives into recommendations
- > Look for opportunities where the needs of multiple stakeholder groups can be met, or where one stakeholder group's needs do not require the undue sacrifice of another.
- > Evaluate alternatives through public feedback.

- > Incorporate recommendations for mitigation efforts and options for Thaltej hutment dwellers for each alternative to reduce negative social impacts, including loss property, way of life, earning potential, and social capital as a result of redevelopment projects as a continuation of public participation program through a community support organization.

### 7.4 Decision-Making Process

The decision being made is over which type of redevelopment scenario and strategy will be pursued by AUDA for improving conditions at Thaltej Lake. Ideally, the scenario will make an effort to equitably balance the needs of the current Thaltej Village residents while also achieving to some degree its intended goals of implementing environmental, social and economic upgrades at the site.

AUDA, in collaboration with SEWA/SAATH and an advisory board, based on community feedback and expert advice, would ultimately make this decision.

Below, the set of public participation tools is provided to guide the public participation program in any redevelopment scenario. Figure 7.1.1 on page 45 illustrates how each of these tools or steps might apply to a specific scenario or whether they can be applied and revisited multiple times throughout the course of public participation, regardless of the redevelopment scenario being pursued. Below, each step is discussed and explained in detail.

### 7.5 Steps in the Public Participation Program

#### RFP for NGO

The first step is identifying the NGO that would facilitate the public participation program. The role of the NGO would be to:



- > Mediate communications between AUDA/AMC and residents and serve as a source of information as well as a receiver of community feedback/responses to proposed actions;
- > Create a strategy for community organization and that would eventually support any efforts toward forming community co-operatives or community-based employment schemes as a result of the upgrade projects;
- > Work to establish tenure security and other barriers to qualifying residents for social services;
- > Organize information gathering and analysis in Thaltej Village in order to gain an understanding of the community's social and cultural institutions and beliefs and other relevant characteristics;
- > Discuss project alternatives, and organize meetings;
- > Negotiate any resettlement issues and organize relocations to temporary and/or permanent homes;
- > Build capacity of the Thaltej residents to participate in the project at appropriate levels;
- > Builds the trust and cooperation between community and stakeholders that is necessary for successful implementation of the project; and
- > Create a foundation for a community support organization that remains intact as a resource for social impact mitigation and successful implementation of the project but also successful community organization as a way to mitigate the effects and strengthen the sustainability of the community.

**Selecting NGO facilitator, identify stakeholder groups, and select advisory board**

The NGO facilitator would be responsible for identifying the stakeholder groups and selecting the advisory board, as well as defining its purpose, duration, guidelines for membership, how it contributes knowledge and skills.

### **Individual Groups Preliminary Meetings**

Small focus group meetings are held to gauge the level of interest and primary concerns of each of the stakeholder groups; groups can be briefed on the upcoming timeline and purpose of the public participation plan, and the background and agenda of the NGO. Time for questions and discussion is allowed. Objective is to learn about the group and to introduce them to the project and SEWA/SAATH.

### **Project Presentation and Initial Meetings**

Public information/Open House style meetings can be promoted in the community center, with flyers, posters, print and online media, distributed throughout the community. Representatives from AUDA, AMC and SEWA/SAATH would be present to discuss the project with the community.

### **Thaltej Community Assessment and Area Survey**

A community assessment can be used to document the relevant existing social, environmental and economic conditions in Thaltej Village and the entire project area, including:

- > Demographic factors
- > Socio-economic factors affecting income and productivity, land tenure, access to jobs, family composition, social capital, and travel patterns;
- > Social organization and capacity at the household and community level, networks, institutions, access to services and information;

- > Socio-political relationships with outside groups, such as perception of AUDA based on experiences and relationship with other stakeholder groups;
- > Needs, values, and attitudes on development, municipal services, interventions, change, and capacity of the community to adapt to these changes; and
- > Activity patterns for the villagers, such as where do they work, where do they shop, where do they go for education/medical attention, what networks are essential for maintaining their social capital and livelihood.

### **Opening of Thaltej Community Info Center**

Establishing a headquarters for community information drop-in center, where meetings can be held and feedback for the project can be collected would give the program facilitators on-the-ground access to the community. The center would also establish a space lays the groundwork for community-led, co-operative initiatives after the project is complete to manage programs that are ongoing as a result of the project. Additionally, printed materials on the project can be distributed via this center.

### **Community Leadership Training Program**

This program's goal might be to identify community leaders and gatekeepers, and establish a framework for successful community-led organization following the project's implementation. Such a network can encourage ownership and establish or maintain community or worker co-operatives, as well as enable the management of programs that were initiated as a result of the project.

### **Presentation of Community Analysis to AUDA**

The specific findings about the community should be communicated and presented to AUDA with enough time for this information to inform any development of scenarios. AUDA might use this information to make decisions about needs in the community and balance those with its own goals and the goals of other stakeholders.

### **Impact Evaluation Community Workshop Series**

Initial alternatives developed by AUDA should be evaluated for their impact to the community and stakeholder groups and prioritized based on guiding principles in a workshop-style meeting format and public attendees are organized into small focus groups. The goal of this step is to identify and balance the social, environmental, and economic impacts of each alternative.

### **Identify/Develop Mitigation Tools**

Based on the results of the impact evaluation, specific tools and adjustment recommendations to the alternatives can be developed in order to mitigate any negative impacts. These can be developed by SEWA/SAATH and the advisory group based on community needs assessed in any preceding surveys, community analyses and workshops.

The following impacts might be addressed:

- > Lifestyle impacts – on the way people behave and relate to family, friends and cohorts on a day-to-day basis;
- > Cultural impacts – on shared customs, obligations, values, language, religious belief and other elements which make a social or ethnic group distinct;
- > Community impacts – on infrastructure, services, voluntary organizations, activity networks and cohesion;

- > Quality of life impacts – on sense of place, aesthetics and heritage, perception of belonging, security and livability, and aspirations for the future; and
- > Health impacts – on mental, physical and social well-being, although these aspects are also the subject of health impact assessment.

## Community Education and Feedback on Mitigation Tools

In an intensive redevelopment scenario, a second tier set of workshops might be scheduled to discuss the mitigation tools developed by SEWA/SAATH and the advisory group. If these mitigation tools are presented to the community, certain elements may require educational components to ensure that the community understands how these might interact or reduce the negative impact of the alternatives.

## Presentation of AUDA's Updated Alternatives to Community

Public information/Open House-style meetings might be used to present any formal plans or decisions that AUDA has made. These can be coupled with a public feedback period that can be conducted by allowing the public to submit either written comments on a form or through the web. A period of time should be established for accepting these forms of feedback on the final alternatives through drop-ins at the Center.

## Modify Impact Evaluation of Alternatives

If updated alternatives are made by AUDA based on community feedback, an evaluation of the social impacts of the final development plans should be updated, as well as the mitigation tools that were previously recommended to be applied to

each. Final round of feedback should be collected and referenced in order to guide this step, which is conducted by SEWA/SAATH with help of the advisory board.

## 7.6 Review Process

The review process for this public participation program should occur throughout the program as well as following the implementation of all levels of any scenario redevelopment project. The review process can also serve as a transition process for transferring community leadership and organizational responsibilities to community leaders from SEWA/SAATH to retain communications throughout the project's implementation and to assist with development mitigation efforts, relocation, and work programs.

## Ongoing Reviews

The surveys and community feedback activities should utilize those opportunities to assess the success of the program via direct feedback from participants, such as gauging their perception that the program is effective and the outcomes are meeting their expectations. Performance metrics, such as attendance rates and their increased ability to communicate and organize as a group should also be assessed.

- > Has the capacity of the Thaltej residents to self-organize or communicate effectively AUDA been increased?
- > Is the center being utilized?
- > Has trust and cooperation between community and AUDA been established?
- > Where have conflicts arisen and what has been the cause? What has been the solution? What techniques for participation have worked best and what needs to be adjusted?

## Review Process

## Final Reviews

A final social impact assessment should be conducted based on the actual outcomes of the redevelopment and the participation program. Post-development surveys and comparisons of initial goals to outcomes should be conducted following the redevelopment. The following questions towards self-assessment may help in the final review:

- > Were the objectives of the mitigation efforts implemented and did they achieve their desired goals?
- > Did the residents establish tenure security and their prioritized social services?
- > Have the community's social, economic and cultural institutions been negatively impacted?
- > What is the retention rate of any resettlements?
- > Has the capacity of the Thaltej residents to self-organize or communicate effectively with
- > AUDA been maintained or increased?
- > Has trust and cooperation between community and AUDA remained?
- > Has the community support organization remained intact?
- > What is the community's perception of the outcome?
- > What is the community's perception of the participation program?

# 8 Scenario Alternatives

In order to work through the stated issues at the project site, the following scenarios were constructed. They approach these issues with increasing levels of intensity. The first scenario offers the least intensive developmental forms while the fourth and final scenario consists are the most intensive. These scenarios can work in concert with one another in a 'building block' fashion for incremental changes, or they can work independently of one another if preferred.

## 8.1 Scenario 1: Environmental Improvement

> Public Health

### Overview

Scenario 1, a low impact environment-based development, is the least intensive

development scheme. It represents the most minimal improvements to advance the quality of life at the site. The scenario will combat contamination of the water bodies and promote appropriate waste management practices. There will be no modifications to the location of existing infrastructure. This only requires modest resources to implement.

### Building Blocks

Scenario 1 employs minor upgrades to aid the environment and potentially advance public health in the local area. With the aid of complementary educational programs, the benefits may be furthered to ensure that the impacts are lasting.

### Environment/Public Health

This scenario considers the issues of water quality and waste management. With respect to water quality, it seeks to improve the filtration and storage of water. Due to the low oxygen content and contamination of the water bodies, these ecosystems are highly stressed. While these issues can be solved through engineered solutions, this scenario seeks to undertake natural methods that can restore

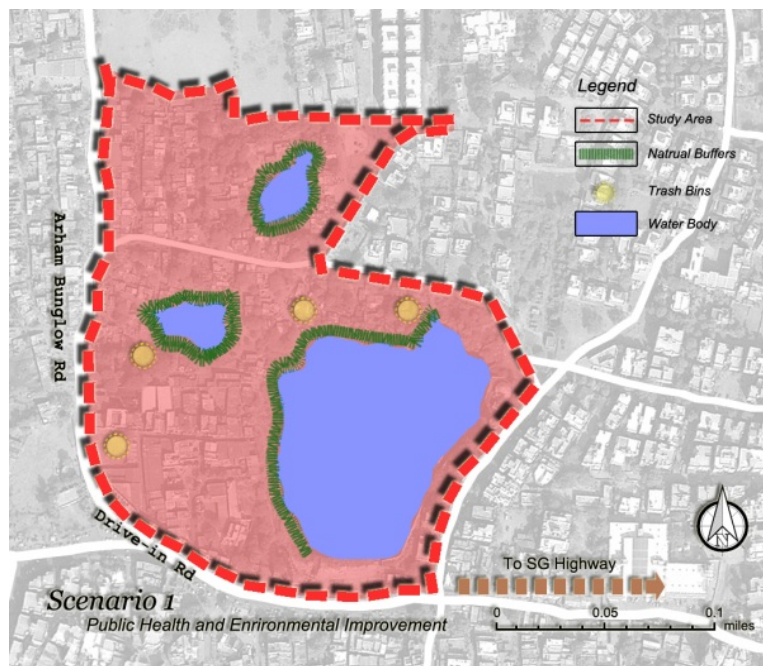


Figure 8.1.1: Scenario 1 Rendering

the littoral environment and overall water quality over time. These methods include the introduction of native plants, such as trees, bushes, and grasses, near the water edge that can manage under the current conditions to act as a buffer between the hutments and the water bodies to uptake nutrients and hold down sediment that may otherwise flow directly into the water. Aquaculture could further improve the active filtration of the water bodies themselves; however, water surface-based plants provide excellent mosquito habitats when there is little movement in the water as is the case in these tanks. Thus, filtration must be limited to a natural buffer in this Scenario. In addition to these attempts at natural remediation, a person may be employed to clean out the trash from the tanks.

**Figure 8.1.2: Oxfam Bucket**



Source: <http://www.oxfam.org.uk>

In response to the stated need for greater water storage, the scenario proposes the creation of a crude program of providing five-gallon water buckets with tight-fitting lids and taps, similar to the Oxfam bucket, to households that can be carried to individual residences to lessen the number of trips that residents must make to and from present water connections.<sup>2</sup> A barrel-shaped design would allow the bucket to be

<sup>2</sup>Oxfam, 2012.  
<http://www.oxfam.org.uk/shop/content/ethicalcollection/oxfambucket/default.html>

rolled if it were too heavy as long as the tap is not permanently connected, similar to a non-pressurized keg.

**Figure 8.1.3. Waste collection with large blue waste bins**



The design of the buckets with taps assures that the contents do not get contaminated through use, while the lid helps to keep pests out of the water as well, where transmission of disease often occurs. This program would be in conjunction with a public participation program in which residents without water connections must register to receive such buckets, which would have unique IDs to help ensure rights.

With respect to waste management, it seeks formalize and increase awareness of approved waste collection sites. Convenient waste bins placed at the gateways to the site where traffic is heaviest and where public services can easily collect the waste can improve current access to waste facilities. While there exists and informal waste collection and incineration, this process has not proven to manage the issue of public sanitation



satisfactorily. Centralizing trash collection sites makes trash sites less ambiguous and can begin a process toward stigmatization of littering. This process can be made much more effective with a community education program such as one that is integrated into primary school education that involves children and their parents.

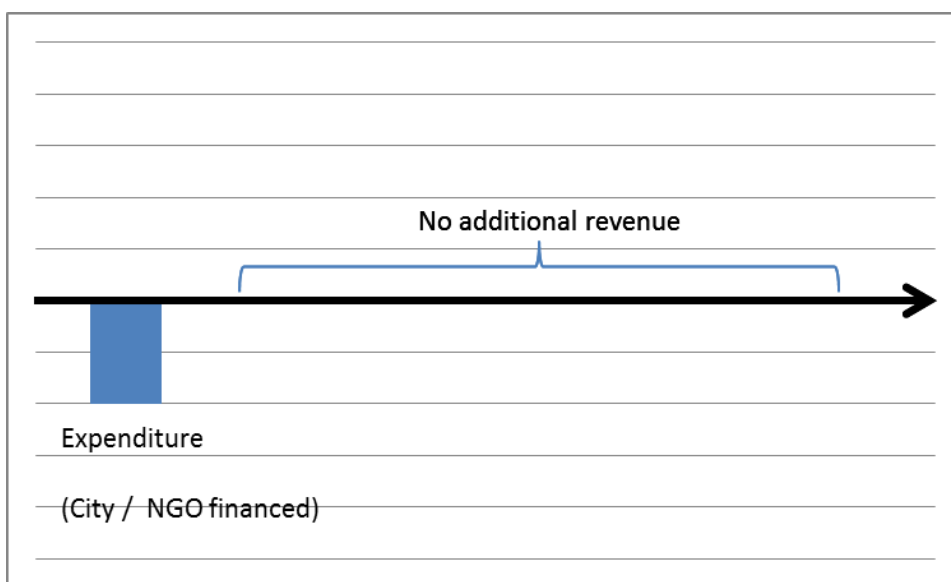
## Funding

Scenario 1 has low funding requirements, most of which can be funded directly out of AUDA funds for the native plant buffer and AMC funds for the waste bin distribution. If possible, an NPO that specializes in water access may be found to help assist with the water bucket program; otherwise, working with the Panchayat to release local funding for the project would be appropriate to its scale.

## Scenarios Analysis

The development of Scenario 1 relies on input from residents. An informal stated

Figure 8.1.4: Scenario 1 Funding



preference survey was conducted, from which we were able to discover the importance of water infrastructure to the community. Limited water distribution service to public taps restricts the amount and frequency of collection. This is a basic

inconvenience that affects hutment families who live onsite and do not have access to private taps.

### Strengths

- > Low required investment
- > High potential ROI in terms of public health
- > Stabilizes water resources
- > Sustainable programs through education

### Weaknesses

- > Limited improvement to environment
- > Does not address other high-priority issues (e.g. land tenure, access to community facilities)

### Opportunities

- > Bottom-up public education campaign through schools
- > Top-down public education campaign through village leaders, NPO, *Panchayat*

### Threats

- > Lack of engagement in process →

unsustainable programs

- > Corruption/Abuse of water storage distribution program if not monitored closely

## Anticipated Outcomes

Scenario 1 is expected to result in a cleaner environment with less refuse on the ground and in the water bodies. Over time, if improved conditions can be sustained, this can lead to improved water quality and lessen the likelihood of surface and groundwater contamination in a city and state where water resources are precious. The entirety of the scenario is made more effective when it coincides with education campaigns for both adults and children. While adult education can create community leadership and accountability, child education can create a new culture over time, both are essential to sustaining positive change.

## 8.2 Scenario 2: Community Initiatives

- > Public Health
- > Community Development

### Overview

This alternative for guiding change in Thaltej focuses on two components: public health and community development for the existing community. The recommendations made in this scenario concentrate on the need to help stabilize the current community under the pressures of new growth, including a new metro station and public housing that will add hundreds of new low-income residents to the site area.

### Building Blocks

As mentioned, the approach to this alternative includes public health and community development. The public health building block includes that which was described in Scenario 1, with some additions that are supported by the needs of the Thaltej hutment community. The community development building block expands on the needs of the community by

setting the stage for a focus on community priorities and plans to execute those needs that have health and social implications.

The recommendations from this alternative fall into four categories: community organizing, land tenure, public infrastructure projects and prioritization, and urban design.

### COMMUNITY ORGANIZING

Thaltej hutment residents would benefit from a formal community development organization that identifies community leaders. The role of community leaders would include representing residents' needs to the relevant governing body, such as AMC and AUDA, and interacting with the Thaltej Village Panchayat. The community leaders would also play a role in prioritizing any objectives the community wants to meet.

The community organization should approach the Thaltej Village *Panchayat* to share space in their offices that are located on the east side of Thaltej Lake. Sharing this space would encourage communication between the two representative bodies and help to formalize a relationship with the *Panchayat*, the City's agencies and the hutment residents, and possibly any non-governmental organizations that would partner with Thaltej hutment residents.

This representative body would also be responsible for coordinating future public participation among hutment residents for AUDA or AMC-led projects that will impact current residents, as will be outlined later in the report.

### LAND TENURE

Thaltej hutment residents would benefit from land security. Not having land security encourages disinvestment in the community both socially and physically.

Residents will not want to put any money savings into home or community improvements at the risk of having to move off of their land and losing their investments. Therefore, residents, with AMC, should come to an agreement on a strategy to provide them with some land security. One possibility for land security is a land lease. This option would allow residents to rent the land from the government under agreed upon terms, such as a lease length of fifteen years in exchange for rental payments. This gives the community some stability to live on their land, while allowing the local government to plan ahead for 15-year time frames and maintain ownership of the land for long-term changes.

#### **PUBLIC INFRASTRUCTURE PROJECTS AND PRIORITIZATION**

Talking with the Thaltej hutment residents revealed four short-term essential needs. In order of priority need, these include private toilets, increase water supply, access to public school, and access to a health clinic.

The community has one community toilet and shower facility and a sprinkling of private toilets. The private toilets were provided by AMC in a previous scheme. However, not all of these toilets are connected to the sewer, and thus are not used by residents who do not have an alternative method for removal or storage of waste. There are several toilet drainage connections from hutments to the smaller lakes surrounding Thaltej in the site area, which is a health hazard. AUDA, as the infrastructure arm of government, should work with the residents to obtain more private toilets that have a method for disposal in the short-term. In the Slum Networking Project initiated in 1996-97, to improve the physical and social infrastructure facilities, AMC and AUDA coordinated with communities to bear the construction cost. Despite the portion paid

by households, NGOs, and other industries, AMC is responsible for toilet provision at a cost of Rs. 5800 (\$113.68) per unit.

In dialogue with the residents, water supply is another urgent issue. While community taps exist and provide water for two hours a day, it is often difficult for residents to carry and store enough water for the day's chores. The exact nature of the difficulty is unknown, however. Further communication is needed with residents to determine whether water supply is an issue of volume, distribution, or both. Depending on the problem, a solution may be either 1) increase water supply to the taps at various times throughout the day or 2) provide resources to improve residents capacity to transfer and store water from the taps to their private residences, such as through the container-transport method recommended in Scenario 1.

A new public school should be funded and built in a location with easy access for Thaltej hutment residents. A lack of space in existing public schools force current residents to travel further to and pay for a private school. Often this option is unaffordable, and results in no schooling. New demands for public schools will be increased when the public housing is occupied in the near future. Without a new school, these new residents too will be forced to bear the financial burden of private school or result in no education for their children. They will also be competing with the Thaltej hutment residents for classroom space, which would not encourage healthy community relationships.

A site for a new public school is suggested on the Scenario 2 map. This site is currently vacant land. The site was strategically chosen as it is accessible from the planned metro station on SG Highway and the



Thaltej hutments. It is buffered by private homes on most sides and accessible by a residential road, which will encourage safety and reduce nuisance of nearby traffic and noise. AMC should purchase this property for a new public school.

Finally, Thaltej hutment residents voiced need of a health clinic that is close enough for their access. Currently, it is difficult for residents to access the nearest clinic that they can afford. Similar to the need for a new school, the impending population growth from the public housing will create more demand for this basic need. A suggested locating for a public health center should be decided with existing residents, however, a suggested site is shown below. The property is currently vacant.

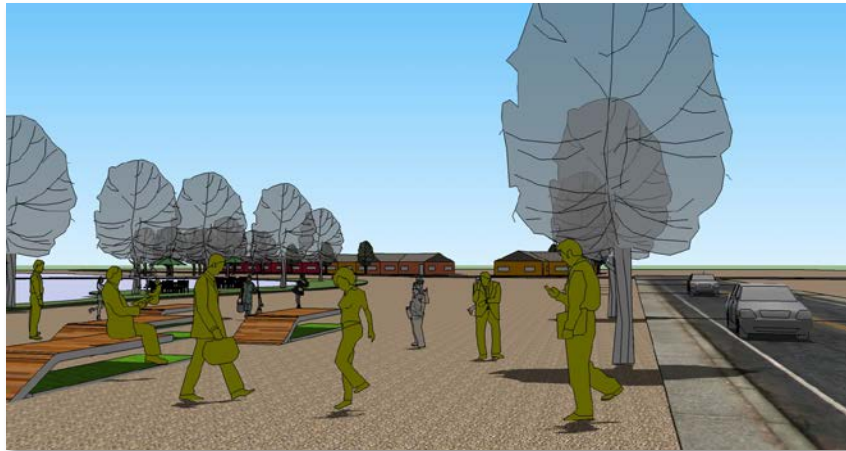
## URBAN DESIGN

Along with the improvements in water quality for the lake in Scenario 1, this Scenario suggests some physical changes to the landscape around the lake to further improve environmental quality and transform it into a visual amenity for the community and visitors to Thaltej.

The immediate area surrounding the lake should have a buffer of native plant species of varying heights, including trees. This offers several benefits, including a physical barrier between the lake and people, which should minimize solid waste additions. Another benefit is to help reduce erosion as the lake expands and shrinks during rainy and non-rainy seasons. It will also be a visual amenity and create shady micro-climates for community members, the temple, *Punchayat* offices, and visitors along Thaltej road.

Physical access to the lake should be formalized through well-defined paths and openings. One such opening could be created by tearing down the wall along the section of the lake's southern periphery fronting Thaltej road. Tearing down the wall and adding a more formalized landscape, orienting people toward the lake, would take advantage of this natural resource as an aesthetic.

The area between the lake and the street should be grade separated for safety, and should be minimally developed to provide open space between the market along the street and the lake. This open space would also offer a visual and physical connection to the Thaltej Village residents south of the site. The rendering and sketch below offer the possible orientation, feel and general design for such an open space on the south side of the lake.



View looking east from Thaltej Road



View looking north from Thaltej Road



## Funding

Funding for this scenario will mostly come from AMC or AUDA. Covering a huge area of 1295 square km, AUDA is likely to face a number of technical, capacity, and resource constraints in carry out their planning mandate. In order to ensure the sustainability of public investment, the Financial Operating Plan (FOP) from AMC's Development Plan sets two financial criteria. One is a year-to-year positive Opening Balance during the plan period. The other criterion requires debt servicing expenses not to exceed 25 percent of revenues. As such, we suggest that AUDA not undertake the project alone, but rather create an enabling environment attracting other potential funding.

In Ahmadabad, informal labor creates generates large amount of revenue every day. Residents living near Thaltej Lake are active and hardworking, despite the fact that they are not well organized and lack working capital. AUDA can partner with and authorize a non-profit organization to coordinate and manage the construction work. During the process, slum residents are encouraged to be engaged either by monetary support or labor supply.

Along with the help from AUDA and NGOs,

the aforementioned community development organization (CDO) will manage these newly constructed amenities. Lessons from Mumbai indicate that the public or community suffers from poor management and dysfunction quickly after the initial construction. One cause of due to public departments falling short of providing sufficient funds for efficient upkeep and maintenance. In this scenario, the CDO would be given the right of collecting an entry fee for access to the existing community toilet and bathhouse. The revenue can be used for operation and management. For those unable to afford a membership, they can volunteer hours for cleaning or maintaining in lieu of payment.

Another funding option is to require impact fees for any new development around Thaltej Lake within a radius of 1 km for commercial and multi-story residential developments. New development will bring more users of the existing and planned infrastructure, and potentially of community facilities. An assessment can be made on the value of the development and the impact fee can be collected and applied to capital costs for new infrastructure and facilities – such as the school and clinic – that are proposed in this scenario. Ideally, AMC would pass legislation that would allow AMC to assess the impact fee and

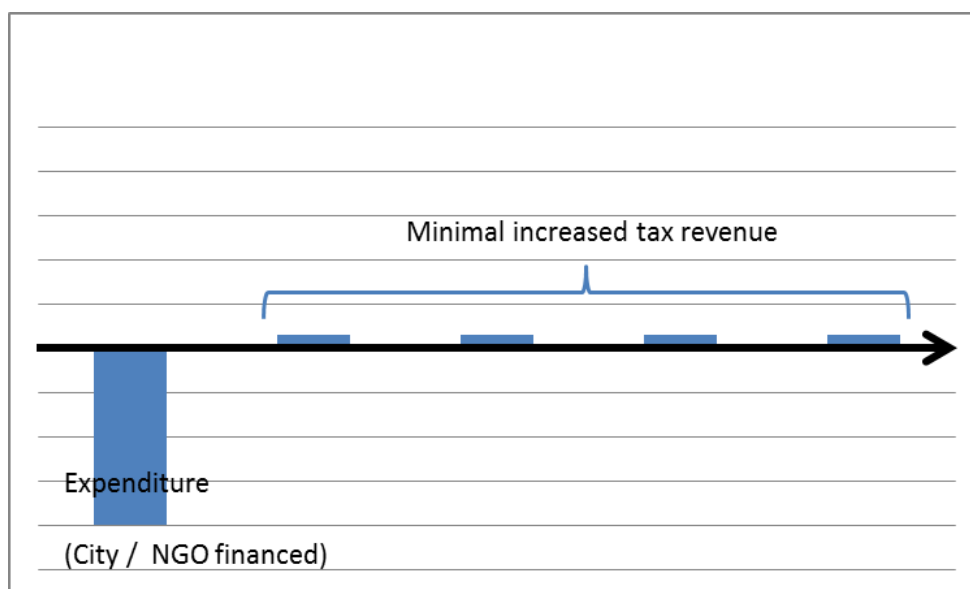


Figure 8.2.1: Scenario 2 Funding



authorize the *Punchayats* or other small-scale representative body to collect and manage part of the fee for facility operations. The bulk of the fees collected should stay with the governing authority and distributed through AUDA or other department responsible for new projects requiring capital. However, revenues collected from impact fees in a certain geographic boundary, such as around Thaltej lake, should be obligated by law to go back to projects within that same boundary.

Although “public-private participation” was considered, a lack of economic incentives from the city reduces the likelihood of involvement by a private investor. An example of lake privatization from a Bangalore case study suggests that investment and maintenance by private companies would result in over-use, eventually leading to severe loss of ecological integrity and social value.

## Alternative 2 Analysis

### Strengths

- > Existing residents’ needs for toilets, water, school and health clinic are prioritized
- > Community Development Organization and land tenure strategy will help sustain existing community and encourage self-investment
- > Micro-economy of hutment jobs in nearby community and businesses go undisturbed

### Weakness

- > Additional funding mechanisms for infrastructure projects will need to be sought
- > Non-traditional sources of funding and project implementation may require new laws to be established by AMC

### Opportunities

- > Thaltej Lake can be enhanced as a visual and communal amenity with open space design
- > Visual enhancement may encourage more commercial development and create economic opportunities

### Threats

- > As development continues near the site, resident displacement may still become a reality

## 8.3 Scenario 3 Community Centered Redevelopment

### Overview

Scenario Three, a community centered redevelopment, is the second most intensive development scheme. The scenario incorporates the remediation of the lake for environmental and public health purposes, as well as incorporating the needs of the existing residents. In addition, this scenario considers how to attract new residents to the area in order to capitalize on the amenity of the lake and deal with the pressures of increasing urbanization from an inclusive standpoint. This scenario will create a new footprint for the lake, allowing for new greenspace and residential projects, while incorporating policies and services for the revitalization of the existing community.

### Building Blocks

Scenario Three is an attempt to phase new greenspace and real estate development into a community revitalization plan. The “Public Health” building block will incorporate Scenario 1, as well as adding more engineering-based environmental remediation. The “Existing Community” building block will incorporate Scenario Two, building on the community development strategies already in place, and adding more housing and economic

development strategies. The “New Residents” building block will provide new residential development and amenities. Scenario Three will have a major effect on the community, but aims to keep most of the existing population in place. It can be seen as an incremental step towards Scenario Four, as it begins to build a structure for new property development to take place. It is inevitable that increased real estate development so close to the core of Ahmedabad will take place; Scenario Three provides a means for existing residents to transition from slum housing to new housing while making their concerns heard. It also begins the process of building new housing, and moving new residents into the community. As existing structures age, they can be replaced by new structures that move in more residents, perhaps of a more diverse income level.

The recommendations from this alternative fall into five categories: environmental and public health, new infrastructure, new residential construction, increased greenspace, and activation of new commercial nodes.

### Environment/Public Health

This category of the scenario considers the issues of water quality, waste management, air quality, sanitation, exposure, and roadway safety. In part, Scenario Three builds on the improvements set up in Scenarios One and Two, incorporating those schemes into this one.

With respect to water quality, Scenario Three addresses the filtration, storage, and aeration of the water bodies. Different from Scenarios One and Two, this scenario involves much greater investment, complete with dredging, constructed wetlands, aquaculture, water cisterns, and stormwater connections throughout the site.

The dredging would allow for bank reclamation and significantly increase the steepness of the slope from land to the water. This can increase the storage capacity of the tanks, reduce evaporation, and mitigate vector risk. Some of the recovered earth can be used for re-grading paths and surrounding land to design channels for surface runoff during the monsoon season that would reduce flood risk to buildings.



Figure 8.3.1. Natural Buffer

The constructed wetlands create an intense buffer of native plant species to reduce erosion and sedimentation, while also capturing nutrients in runoff that may otherwise lead to algal growth and, later, hypoxia, reducing water quality and the viability of life in the water bodies. Figure 8.3.1 shows an example of constructed wetlands on a small scale. To aerate the water other than through capillary action from plants and coarse bubble systems as described in Scenario Two, Scenario Three utilizes the subtly different altitudes of the water bodies to move water to each of the local water bodies through rocky channels of constructed wetlands to increase the turbulence of the flow, which increases the exchange of oxygen with the water. The process harnesses the stormwater management program that has linked the water bodies to the Narmada Canal, which makes the tanks perennial. If grades allow for the element, small waterfalls that lead into each water body further promote aeration, while creating an aesthetic

amenity. All of these improvements, make aquaculture viable. The introduction of fish and other animal species that consume mosquito eggs should curb vector risk in the wetlands.

Water cisterns can be found throughout India including within Thaltej itself. This scenario would expand the number of facilities with cisterns to include new public/community facilities constructed under this program. The goal of increasing water storage in the local area is to reduce dependence on the Narmada Canal and reduce the amount of water that is discharged into the Sabarmati River, where it may then be taken downstream out of the Ahmedabad water supply. The water bodies work as stormwater management systems for Greater Ahmedabad. However, Scenario Three connects the areas within the development via paved street gutters to natural channels that lead to the water bodies to build a stormwater management system for the site. This system would not be connected directly to the wastewater/sewer system to prevent any mixing of effluent into the water bodies. This infrastructure reduces the load on the sewer lines to transmit

water during the monsoon season, lessening the potential for sewer overflow. With respect to waste management, the methods from Scenario Two are continued, including waste containers on the perimeter of the site and on the interior along alleyways.

## New Infrastructure

New infrastructure will improve public health, environment, and the economy of the community. This infrastructure will build on that suggested by Scenarios Two and Three, while potentially paving the way for Scenario Four.

One of the larger infrastructure issues to be addressed in this scenario is the connectivity of streets, roads, and footpaths. As seen in the map in Figure 8.3.2, this scenario calls for an increased street network, emphasizing more connectivity and node-oriented development. This is in place to begin to create a connected network, contrary to the more dendritic streets that are being constructed as Ahmedabad continues to expand. In addition to the improvements to major streets, alleys (not shown) can add to the street network, and provide a means to



Figure 8.3.1: Scenario 3 Rendering

collect waste, thereby solving some portion of the sanitation problem.

With respect to air quality, Scenario Three builds on top of Scenario Two with additional pavement along all roadways and urban paths and gravel alongside greenways next to connecting stream channels. These investments further reduce the amount of dust that can be released into the air; however, increased accessibility for automobiles may increase exposure to vehicle emissions.

Another strategy to improve public health is to prioritize walking and biking areas. The installation of a boardwalk around the lake will facilitate enjoyment of the newly cleaned lake, as well as increased exercise area. Those streets that connect directly to the boardwalk around the lake should have sidewalks clearly delineated by street trees and raised curbs. A market pavilion with covered stalls for vendors on the southern side of Thaltej Lake fronting Drive-In Road will incentivize use of public space by providing shade during the day and lighting at night.

The intersection of Arham Bungalow Road, which runs north and south, and Drive In Road should be a key commercial

intersection, and delineated as such by pedestrian infrastructure such as crosswalks and wide sidewalks. Furthermore, boulevard structures such as pedestrian islands and signals may be needed as the area develops. This area should also include street lighting to increase perceptions of safety in the area.

A key issue for public safety is adequate lighting. This improves the perception of safety, and is especially needed with revived public access to the lakefront. As mentioned, public lighting will be added to the newly activated commercial area and the market pavilion. For increased safety, public lighting should be installed around the boardwalk as well.

### Residential Construction

Large portions of the existing community will remain in place, while those located in the flood plains of the existing lake will be moved in order to expand the lake’s footprint. The households that are disrupted by the new development will be moved to a site north of the original slum settlement. This site is within walking distance of the community, so as to minimize disrupting the social network. The communities that will stay in place are



Figure 8.3.3: Incremental Improvements



highlighted with an overlay in the accompanying map. As mentioned in previous pages, there is already public housing constructed here; our recommendation is that the existing community members be relocated to this area.

The portions that stay in place will be upgraded through a series of steps that build off of Scenario Two, while considering that one of the goals of this scenario is providing for the recreation needs of a new population. The needs of the community and the needs of this new population can be balanced through public participation.

Implementing a guideline for incremental improvements will help to ensure the visual cohesion of the neighborhood. In addition, improving the quality of existing housing may make the area more appealing to middle income homebuyers, who will be the target demographic for new housing. Figure 8.3.3 shows the incremental improvements typically made on a slum dwelling. As the slum housing improves incrementally, Scenario Three assumes the implementation of private toilets for all households. This creates an opportunity to redevelop community toilets into other uses and provides residents with secure means of improving personal and public hygiene.

The design of the newly resettled communities will depend in large part on public participation from the families who will be affected. As mentioned above, preliminary interviews with households indicated that current relocation housing did not fit their lifestyle. Indeed, Lauren Farrow's article addresses the disconnect that architects, especially from different cultures, experience when designing houses for slum dwellers. In a very informative blog post, journalist Lauren Farrow follows the process of designing new slum housing in Pune, India. Figures 8.3.4 and 8.3.5

showcase the designs that were most feasible in the context.



Figure 8.3.4: Filipe Balestra and Sara Göransson's Design for Pune

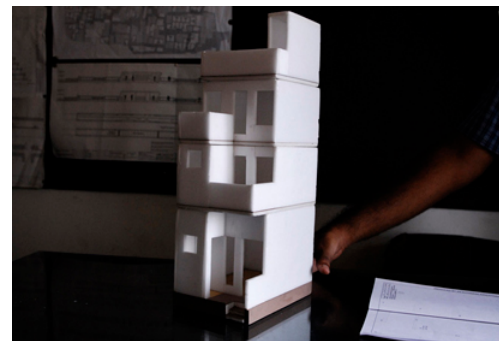


Figure 8.3.5: Vedang Bagwe's Model for Pune Housing

In these designs, the ground floor is left open, to be used as living space, storage, commercial space, or a garage. The second floor has a veranda, incorporating open space. The slum residents played a major part in directing the design effort, pointing out their need for underground storage tanks, and their preferences for outdoor space.

Figure 8.3.6 illustrates the proposed development under Scenario Three. As in Scenario Two, a health clinic and a school are included in the plan, because these services are currently not available to the slum community. Adding to these amenities is a public barn for cattle. The barn is situated at the north tip of the lake. This area is closest to the resettled hutment, households, who are expected to gain the most use from the facility. It is located in at the intersection of two green space areas,

so that animals from all areas of the hutment settlement can use the facility. The barn is an essential piece to the resettlement of part of the community. In our informal interviews, residents expressed their desire that housing accommodate their livestock and their extended families. In Figure 8.3.6, a prototype for a barn used by the non-profit group Food for Life Vrindavana in Uttar Pradesh. This design takes up one acre of space, and houses about 150 cows. This should serve as an example, rather than a model.

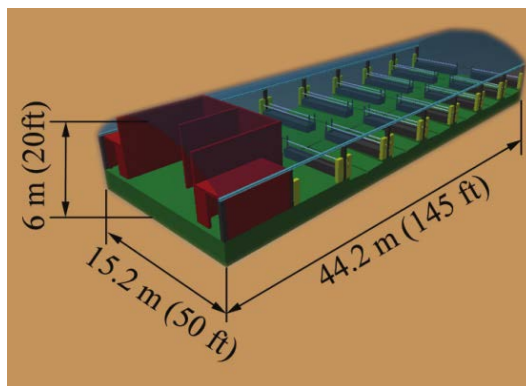


Figure 8.3.6: Community Barn

The new housing that will be built will target lower middle class and middle class families. This will ensure that current slum

dwellers are not “gentrified out” of their homes, and also fill a niche in the market that is not currently being served. An article in national newspaper *The Hindu*, cites Mr Patnaik D. R., General Manager of Ramky Estates & Farms, a major real estate developer. He explains that there is an increase in demand for apartments, especially the ones which are compact—below 1500 square feet, rather than those which are big (Kumar, 2011). The upward surge in demand for middle-income group and affordable housing is forcing developers to look at this segment, away from luxury villas and larger apartments.

Figure 8.3.7 shows the market sector for lower middle income families. According to the source article for this graphic, a report from the Monitor Group, a flat that is 500 square feet can cost Rs. 450,000 to 500,000 thousand (Karamchandani, Shenoy, Soman, Venkatachalam, and Jain, 2008).

Households making Rs. 11,000 to Rs. 12,000 per month can afford this price only with financing. Although a 500 square foot unit is among the smallest being built today, due to price, it would be out of bounds for over 80 percent of India’s households, as shown in Figure 8.3.7.

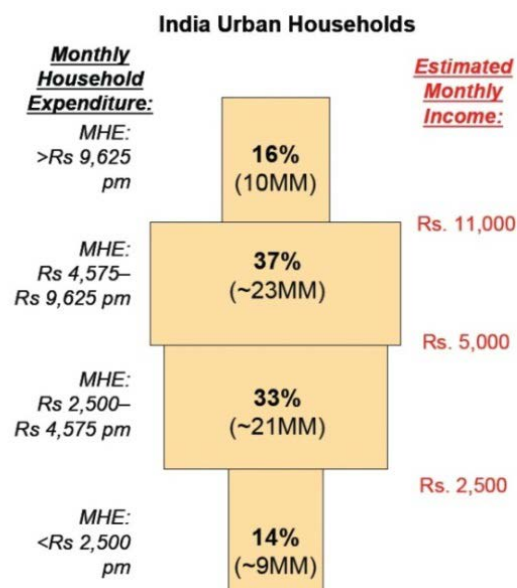


Figure 8.3.7: India Urban Households



The same Monitor Group report explains that families who are lower to middle income are interested in purchasing new housing in the square footage range of 250-350 square feet, at a price point of Rs. 250,000-320,000. If this demographic were to consider moving, they would prefer to live somewhere with safe and plentiful public space, access to schools, shops and healthcare, and, most importantly, access to public transport (Karamchandani, Shenoy, Soman, Venkatachalam, and Jain, 2008).

The report includes a floorplan of a 229 square foot house, shown in Figure 8.3.8. This floor plan was built in a housing development in Mumbai, and has received enthusiastic reviews from the buyers. Though the target demographic is lower middle to middle class households due to strict class divisions in Indian society, and to appeal to marketability, the new housing is carefully situated to avoid views of hutment settlements and the cattle barn. Access to the new housing is offered through several points, so that new residents can avoid hutment settlement areas, which can be seen as unsafe or unsavory. Additionally, it is recommended that screening trees be incorporated at the bordering edges between the new housing and the existing settlements.

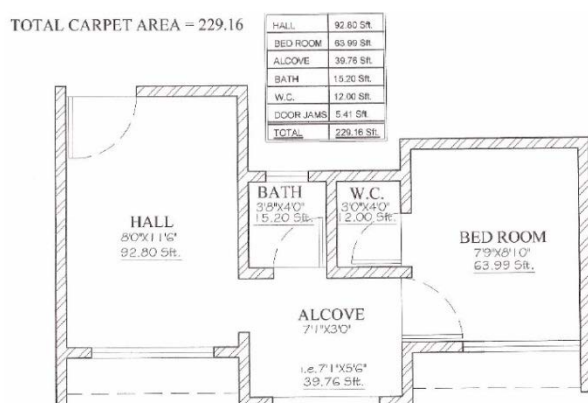


Figure 8.3.8: Floor plans for 229 sq ft dwelling

## Increased Greenspace

In a city as dense as Ahmedabad, a major concern is access to green space and recreation. As in the case of Vastrapur Lake, increased green space can mean increased economic activity as the area becomes a draw for new development. Green space attracts new commercial and residential development, and facilitates community gathering. The challenge is balancing the needs of the existing community with additional population from new development.

A public space for cattle grazing and food cultivation is located to the east of the resettled community, north of the public barn. This space connects to a greenway for cattle grazing and food production. It should incorporate a watering facility for cattle, and strategic access to the lake. Specifics of the layout of this green space should be directed by the community. If the community decides to pursue agricultural products, there is the possibility that other green space areas around the lake could be cultivated as well. It is feasible to put in place an entire agricultural program, utilizing the park-like space around the lake to create economic opportunities for current residents. A partnership with a university or the Ministry of Agriculture would be beneficial to this program.

The portion of the green space that would serve as recreational facilities for the general public is accessed at the southern end of the lake. The informal market area along Drive-In Road would be formalized with a market pavilion that would serve as the gateway for a “beach-like” park and access to the lake via a dock. This dock would extend around the perimeter of the lake as a boardwalk. A depiction of the proposed boardwalk, pavilion, and dock is shown in Figure 8.3.9. Additionally, the dock could facilitate small businesses such

as paddleboat rentals and small street food vendors.

As the boardwalk extends around the lake, it will connect uses such as the *Punchayat* building and the temple on the east side to the lake. At the northeastern corner, the boardwalk will be connected to a small greenway between the lake and newly developed bungalow homes. As it continues, the boardwalk will become a bridge over the floodplain areas that are now the wetland area and waterfall connector area of the three of the lakes. At the tip of the peninsula, the boardwalk will connect with an additional pedestrian outlet that primarily serves the new housing. This connection enables residents of the new housing on the peninsula to walk to the market pavilion and commercial corridor without using roads, or walking through the hutment settlements.

The boardwalk continues to circle around the lake, ending back at the market pavilion. Whenever possible, street connections meet up with the boardwalk to

facilitate the surrounding neighborhood using the boardwalk to access the market pavilion. This decreases travel time to access this new recreational facility, and encourages local use.

## Activation of Commercial Nodes

Along with the creation of a market pavilion bordering Drive-In Road, medium-scale commercial development should be pursued to create a commercial corridor serving Thaltej Village, hutment settlements, and new residents. Since there is already heavy-scale commercial development along the SG Highway corridor, the development in the Drive-In Road corridor bordering Thaltej village should be smaller scale, and more suited to neighborhood development.

Traveling west on Drive-In Road, the first indication of a commercial corridor will be the market pavilion. The existing vendors will continue to sell their merchandise in the stretch of road between the market



Figure 8.3.9: Boardwalk, Pavilion, and Dock

pavilion and the newly developed Arham Bungalow Road/Drive-In Road commercial node. For the vendors' safety, a raised curb could be installed, but this infrastructure improvement may be cost prohibitive. A mixed-use development at the intersection of Arham Bungalow Road and Drive-In Road should be encouraged. There is already commercial development on the east side of the road, and along Drive-In Road. Currently, there is a library housed on the west side of Drive-In Road. The area around the library can be expanded into a social services hub. As in Scenario Two, a new school building/ community building and a new clinic are needed. These new facilities can be incorporated into a campus with the library, to provide a protected, walkable environment serving hutments and new low middle class clients.

On the east side of Arham Bungalow Road, and bordering Drive-In Road, a small collection of retail shops already exists. These buildings should remain in place, and if more density is needed, owners should be given the option of expanding into a second story. Similarly, the commercial development on the southern side of Drive-In Road should remain, with the option of increasing density.

The key to making this commercial area succeed and thrive will be installation of traffic calming measures. A three-way traffic light needs to be installed to control motor vehicle traffic. On each of the three access points, raised crosswalks should be installed, with raised pedestrian islands in the medians. The pedestrian islands should be sloped to accommodate carts and bicycles.

The purpose of creating a walkable environment and encouraging existing businesses and social services that cater to the current residents is to ensure that the development does not usurp the business segment of the informal sector. In a

previous lake development at Vastrapur, new commercial development consisted of a multi-story mall and cinema complex. The mall's stores include a grocery store, clothing shops, and restaurants. In other areas, fresh and prepared food, clothing, and all manner of other merchandise is sold by vendors from carts on the street. There is a lively market already in place in Thaltej. Encouraging large-scale commercial development would diminish the market share of street-vendors, many of whom are housed in the surrounding communities. Furthermore, a large-scale development would not serve the needs of the existing population, or the new low to middle class population.

## Funding

Funding this scenario requires cooperation and creativity. Cooperation is required because a non-governmental organization (NGO) should be recruited to assist with slum upgrading, as was the case for the Slum Networking Project (SNP). The SNP was a partnership between SEWA Bank, AMC, and other local NGOs, and is known as an innovative partnership model for slum-upgrading. In the SNP, SEWA and AMC provided a bundle of services to slum communities who agreed to take part in the program. The bundle of services included physical development, community development, physical surveys, design and consulting, networking with existing mains system, and providing individual toilets (Das and Takahashi, 2009).

The AMC contributed approximately 80 percent of the funds needed to install this bundle of services. Beneficiary households were expected to contribute the remaining 20 percent. This 20 percent was either saved, or borrowed from SEWA Bank. Loans made through SEWA bank for this purpose are called Parivartan loans. Through the SNP scheme, the AMC provided Rs. 8,000 per participating household for slum

upgrading. Participating households provided a counterpart contribution of Rs. 2,000 for a total investment of Rs. 10,000 (City Alliance, 2002).

Physical improvement of the slums was the main goal of this project, but community development was also included. The community development portion was facilitated by a non-profit arm of SEWA bank, called the Mahila Housing Trust (MHT). In the SNP, the MHT was charged with educating communities about the program, and with organizing community groups, made up of mostly women, to make decisions about the services being implemented. These community organizations worked to promote SNP in their communities, and to convince the entire community to pay for the upgrades. In subsequent years, MHT has worked with these community groups to teach them how to apply for national government grants and how to file complaints with local governments. Utilizing the power of these community groups to implement upgrading in the Thaltej hutment settlements would build on the community organizations in Scenario Two, as well as being the channel through which AUDA works to implement a resettlement program.

The most contentious issue in slum upgrading programs worldwide is the issue of tenure. Residents are unwilling to commit their meager resources to improve their community if they have no ownership rights. Some successful slum upgrading projects, like the Baan Mankong initiative in Thailand have national government support that allows for land tenure takeover by slum residents. In Gujarat, the authority to extend formal tenure rests with the state government , which has never allowed upgrading on state government–owned lands (Das and Takahashi, 2009). In the SNP, AMC was able to provide for a 10-year security of tenure for upgraded slums. This ten-year “grace period” was renewed for participating communities who reached the end of the ten-year period, but in general, AMC viewed the SNP as a catalyst that residents could leverage to improve their living situation and leave their communities (Das and Takahashi, 2009).

One idea that could be implemented to add more value to the SNP 10-year land tenure model is to grant development rights to the residents, and allow them to sell these rights to developers who are interested in purchasing them at the end of the 10-year

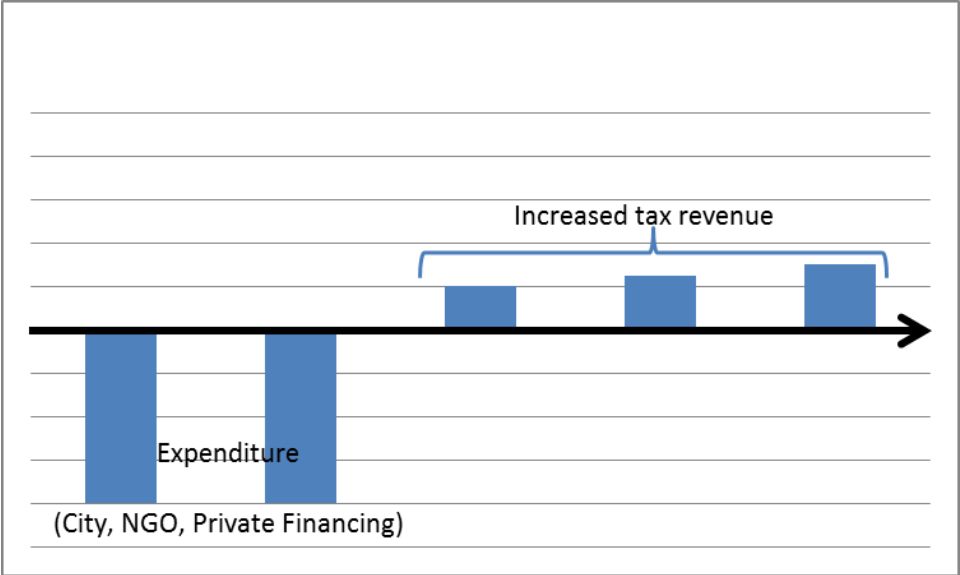


Figure 8.3.10: Scenario 3 Funding

period. On private lands, residents could

pay the landholder for his development rights as their 20 percent portion of the upgrading fee. This would benefit the landowners, and make them more amenable to the program. The residents would hold the rights, and could sell them up until the end of their tenure agreement. This could be structured so that development rights are only marketable for the last three years, in order to prevent residents from “flipping” their and the AUDA’s investment. To ensure that developers would use the development rights, the program could be structured so that purchasing the rights from residents is the most efficient system in terms of time and finance. Alternatively, the development rights could be re-purchased by the landowner.

While AMC has extensive experience in SNP-type projects, AUDA is less experienced. AMC should be encouraged to expand their boundaries to encompass Thaltej, so that a program such as SNP can be implemented.

A program for purchasing new housing and improving existing housing can be pursued in partnership with SEWA bank. Currently, their most common loan for housing, called the Paki Bhit loan, is only available at Rs. 25,000 with a 14 percent interest rate. Approximately half of the Paki Bhit loans are used for basic improvements such as wall, floor, or roof repair, and half are used for room additions including kitchen or bathroom additions. It would be advisable to partner with SEWA to offer a new loan product that facilitates financing for new house construction for current slum dwellers. This could be structured similarly to the Paki Bhit. A new loan product would have to be developed to fund the purchase of new homes at a price of Rs. 250,000. SEWA is one of the largest microfinance institutions in India, and they currently work with the Housing Development Finance Corporation (HUDCO) to offer the

Paki Bhit loans (Cities Alliance, 2003). As HUDCO guarantees Paki Bhit loans, a larger agency, such as AUDA, or even the World Bank could guarantee larger loans.

Increasing the existing residents’ earning capacity is one way to ensure they will be able to invest in new housing. This can be accomplished by hiring existing residents to complete infrastructure projects, whenever possible. Clearing land for new greenspace, building the boardwalk and cleaning the lake, and building new community facilities can all be accomplished by residents. A training program would have to be implemented to teach residents basic carpentry and other skills. This would be especially beneficial to youth and women who are not traditionally employed. The practice of recruiting residents to plan and build infrastructure was tested in the case study of Kitale, Kenya, and found to be very effective in training residents and creating jobs.

Furthermore, financing programs with SEWA bank can be employed to allow more community members to take advantage of the public space through informal businesses like food carts or entertainment. As shown in the case study from Nairobi, Kenya, the success of small businesses in the informal sector is often tied into the quality of the infrastructure of the community they are located in.

Adding new property, new infrastructure, increased sources of revenue, and land tenure rights will create a situation like the one described in Figure 8.3.10, wherein the expenditure of the city can be covered in some portion by increased tax revenue. To keep this tax revenue increasing, it is essential to implement a maintenance plan. The management of the new greenspace will be charged to AUDA, rather than a private developer. It is essential that public access to the lake remain a priority. Unlike Vastrapur, no fence should be installed

around the property. A guard rail around the boardwalk is a necessity, but a fence would preclude recreational interactions with the lake and give the appearance of elitism.

## Analysis

### Social

In Scenario Three, the quality of life for existing residents is improved, and the addition of new residents is facilitated. Existing residents receive new housing and infrastructure that is supportive of their lifestyle. Combining Scenarios One, Two, and Three will lead to a better life for the existing residents, with Scenario One creating a healthier living environment, Scenario Two improving basic services and community development, and Scenario Three creating new housing and employment opportunities. Furthermore, it will lay the groundwork for an incremental stage of growth towards Scenario Four.

Of course, whenever improvements are made to a community, changes will occur. The improvements may put pressure on residents to sell their land. The property taxes will increase, which could drive some residents out of the area. Clashes between new residents and existing residents regarding lifestyle choices such as farming, cattle, and transportation may become an issue.

### Economic

The existing residents will benefit from more opportunities for employment. Formal jobs will be created by infrastructure-based employment, and informal jobs will be created by an influx of new residents purchasing goods and services. Appropriate commercial development will ensure the continued existence of the informal sector. The market pavilion and improved lake will create opportunities for vending and small businesses such as boat rental.

Creating a community that targets a lower and middle income demographic will be beneficial to the entire city of Ahmedabad. Forcing out lower-classes will make labor costs in the city rise. Although workers could appreciate higher wages, increased transportation costs will eat into their profits. Situating a subsidized middle-income community at Thaltej will allow workers to take advantage of public transportation and easy access to the city.

### Environmental and Health

A study of the SNP scheme found that upgrades in slum household infrastructure can lead to improved health outcomes. Slum upgrading reduced a claimant's likelihood of waterborne illness from 32 percent to 14 percent, and from 25 percent to 10 percent excluding mosquito-related illnesses (Butala, VanRooyen, Patel, 2010).

Added infrastructure will improve the health of new and existing residents by calming traffic and attempting to keep dust at bay. Traffic calming measures will make crossing the streets easier at the newly improved commercial node.

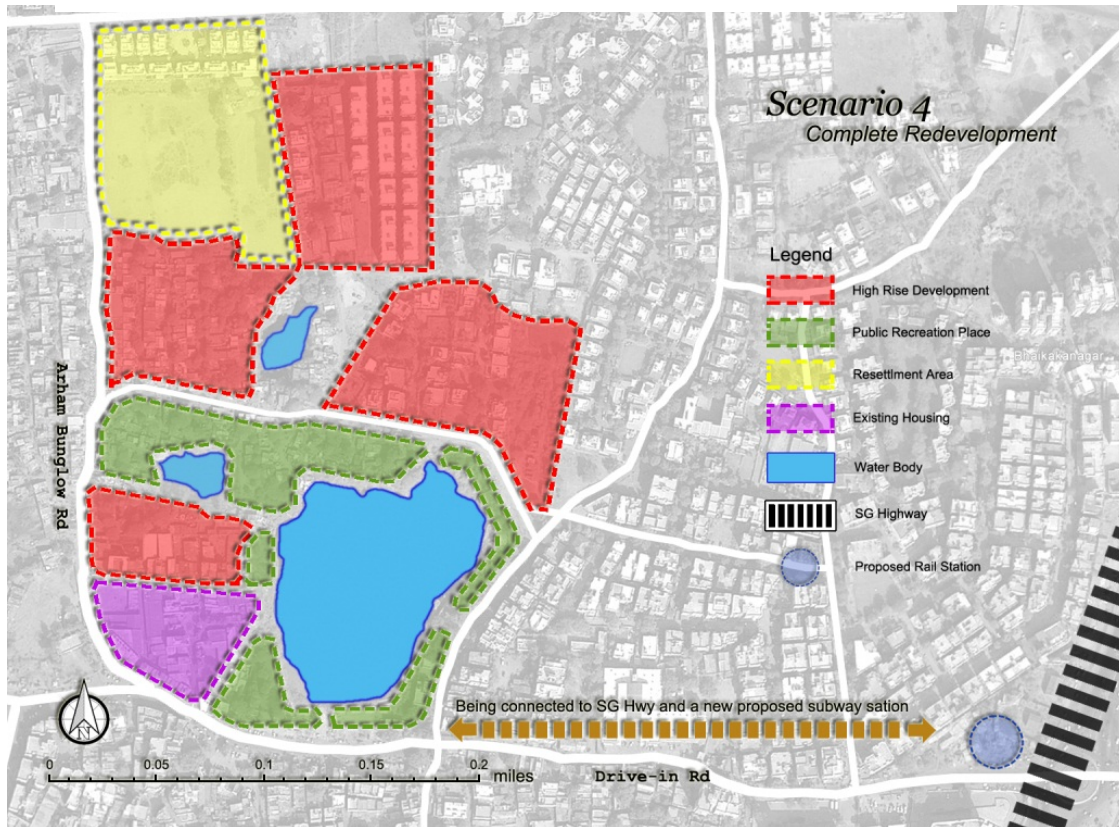
## 8.4 Scenario 4: Redevelopment

### Overview

Scenario 4, a complete redevelopment, is the most intensive development scheme. The scenario will completely reconstruct the lake and provide Ahmedabad with new public, recreation space surrounding the lake. Existing residents will be moved to new public housing offsite and new private housing will be constructed on site. This type of redevelopment will most closely resemble the Vastrapur model and traditional urban renewal.



Figure 8.4.1: Scenario 4 Rendering



### 8.4.1 Building Blocks

Scenario 4 most dramatically affects the local environment, existing and new community, and broader Ahmedabad.

#### Environment/Public Health

This scenario considers the issues of water quality, waste management, air quality, sanitation, exposure, roadway safety, and healthcare access. In part, Scenario 4 builds on the improvements set up in Scenarios 1-3, incorporating those schemes into this one and has similarities to Scenario 3 with some engineering and aesthetically-driven differences in the manner in which it addresses water resources. Therefore, the details of this scenario will only discuss these differences, for details of the remaining elements, see Scenario 3. With respect to water resource management, Scenario 4 seeks to follow the Vastrapur Model of water body restoration,

discussed earlier in this document, utilizing natural stone, reinforced concrete, etc. This method creates a permanent landscape that can withstand heavy downpours from monsoons with no degradation of the site. It allows the water bodies to be customized to fit the desires of the development authorities as well as potential developers. It also converts the water bodies into public amenities, more or less detached from nature. This plan does not require natural buffers as constructed buffers with garden space can provide some, though lower, level of the same function, while also providing perhaps a more aesthetically pleasing environment for citizens. To aerate the water bodies, fountains can be placed at their centers for this function. Finally, rather than utilizing greenways to connect the water bodies, the current water lines that connect them would be sufficient in order to augment the amount of developable space. These methods come with environmental trade-offs compared with Scenario 3, however, they present

developers with a more standard commercialized beauty for the property.

## Existing Community

To prioritize the real estate value of a fully redesigned Thaltej Lake, the existing community would be moved away from the existing site. Because the site is relatively small, new housing would be provided for existing residents off site.

Although the entire slum community at Thaltej Lake would be moved to new housing, many steps would be taken to ensure the transition to new housing will be the least disruptive and most equitable. Even (and especially) in this scenario, community participation will be integral to influence the design of the new housing, the logistics of the final move, and ongoing operations of the new housing. Based on this community participation, every effort will be made to preserve the existing social and economic networks that are so integral to the community at Thaltej Lake. Although there will naturally be disruptions to the existing networks, through careful planning, design, and ongoing community engagement, these disruptions will be minimized.

While the actual specifications of the new housing will be the result of the public participation process discussed in Chapter 7, there are a number of likely features. First, whatever the final housing scheme, some type of tenure will be provided for residents, which they lack in their current settlement. This could take the form of ownership, but more likely a long term lease, similar to the schemes tried in Mumbai. Second, the design of the buildings likely will be based on modifications to existing apartment designs. The new designs will feature space that is more suitable to the needs of the Thaltej Lake residents. Third, the new housing will provide residence with better

access to water, sewer, and electricity. Finally, beyond the specifics of the living quarters of Scenario 4, additional social services will be included in this plan to address the needs of the community. A public school will be located at, or near, the site of the new housing, along with a health center and community center.

## New Community

With the creation of newly designed recreation land and the clearing of the existing slum housing, large portions of the land would be redeveloped with private residences. These new private residences—which will likely include a combination of bungalows and high rise apartments—will attract new people to the area. These new residents will be able to take advantage of the new recreation amenities at Thaltej Lake and have access to the proposed Metro and BRTS. Although it is unlikely new residents would take public transportation, it can provide access for the new residents' domestic help.

Bringing in a new community to Thaltej presents a number of challenges for the surrounding neighborhood. Because the new community will be middle to upper middle class, they will expect certain amenities, such as stores, restaurants, and entertainment, which will affect the surrounding area. These amenities along with the newly designed lake and the more expensive residences will, overtime, cause price appreciation in the surrounding neighborhood. The timeline of these neighborhood changes will be dependent on not only the Thaltej redevelopment, but also the economic performance of greater Ahmedabad.

Beyond the general effects of gentrification, the new community will have significant impacts on the local road network. Rather than the gradual increase of automobiles in Thaltej that will occur regardless of new

development, this new development scheme would bring hundreds of new automobiles to the area all at once. Although nearby roads, such as SG Highway, have been designed for the automobile, the local road network around Thaltej is made up primarily of winding, narrow roads that are not conducive to the automobile. Furthermore, these roads are already heavily congested with existing traffic let alone the addition of new automobiles. In addition to addressing the design and capacity of the road network, private vehicle parking will be a concern for Scenario 4. Currently, there is little need for parking infrastructure at the site. In the development of Scenario 4, parking for the new community's private automobiles and two-wheelers will need to be incorporated into the design. Additionally, to attract visitors to the newly designed lake, ample parking will be important to incorporate into the project's design.

## Broader Ahmedabad

In a city that has prioritized increasing public green space, a redevelopment of Thaltej Lake will provide new public space to an area of the city that lacks it. The surrounding area continues to urbanize with dense developments that lack public space. Especially to the north and west of Thaltej Lake, lower density, bungalow developments will continue to develop. Although these developments incorporate greater amounts of green space, the space is private and not accessible to the broader public of Ahmedabad. The accessibility is enhanced by the nearby BRTS and a proposed Metro line.

This recreation space ties into the previously discussed environmental and new community features, but there will be a number of features specifically targeting people from broader Ahmedabad. These features will include space designed for

entertainment, playground areas to attract children and young families, shaded space for relaxing during the summer months, as well as designated areas for food vending.

The new urban public recreation space targeting citizens throughout Ahmedabad will spur economic development in Thaltej Village and the nearby neighborhoods. An influx of new residents and visitors will provide opportunities to expand local businesses and produce jobs in the surrounding areas. While the final count of new jobs will be contingent on the number of new residents and the amount of visitors, the new jobs and businesses spurred by a Thaltej Lake redevelopment will be an important outcome for Ahmedabad. Additionally, there will be opportunities to borrow job training approaches discussed in the previous scenarios to improve the local workforce.

## Funding

Although Scenario 4 has the highest funding requirements, the scheme will be mostly supported through increased land values and private funds. As was the case with Vastrapur, a major portion of the project's costs will be dedicated to relocation of the current residents into new housing. Below three general funding structures are discussed.

The first structure is essentially a small scale version of the funding of the Sabarmati River. The city will construct the new lake, public space, and new offsite housing from the proceeds of land sales. A portion of the Thaltej Lake site will be used as public space with the remaining portion being parceled off and sold or entered into a long term lease. Because of the unlocked value created by the lake redevelopment, the parcels can be sold/leased at a much higher rate than the current market value in the area. If the timing aligns with the development of the nearby metro station,

an even higher value will be able to be achieved for the new residential parcels. Although there are many variables involved with the financing, this structure should cover many of the costs; however, a public subsidy will probably be necessary to finance the project.

A second option is for the sale of the entire Thaltej Lake area upfront and have a developer lead the development of the lake, public space, and residential construction. In this financing scheme, strict covenants and contracts will be necessary to ensure the developer delivers the product and it is used/operated as intended.

The development of the new housing in this second financing scheme could be led privately or publically. As part of the sale of the site, a requirement could be for the new owner to provide new housing for the existing slum populations. More likely, the government would lead the development of the new housing with proceeds from the land sale. In the government-led scenario, community involvement could, theoretically, be better incorporated into the planning for the new housing.

A third financing scheme is to introduce some form of tax increment financing to the project. This scheme is the most variable, as tax increment financing does not exist in India, and there is no property tax data. This scheme is essentially an addition to the first financing scheme, where the city constructs the lake, public space, and new housing using proceeds from the sale of the property. To close any potential financing gap, new property tax revenue generated from the site could be used exclusively for project financing.

## Scenarios Analysis

### Social

Scenario 4 has a number of strengths over the other scenarios. First, the new development will bring new residents to the Thaltej area. Rather than moving to new suburbs, these new residents will be located in an infill site within the city limits built around existing infrastructure. Second, the site will be a new recreational amenity for residents from all over Ahmedabad. Unlike the other scenarios, which will improve the lake for the residents located in the immediate neighborhood, this scenario will create a destination for the entire city. Finally, for the existing residents, the new housing will be a significant improvement over the existing housing conditions. The existing residents will also have access to a new school, community center, and health center near their new housing.

Despite the social strengths of Scenario 4, it has a number of inherent weaknesses that should be addressed in the development's planning. A major weakness is the disruption to the existing community and social networks within the slum housing. Although the community participation plan works to preserve these networks, the risk remains that a significant amount of these networks will be lost in a move to new housing. Another social weakness is that the new development takes the form of a gated community and will be disconnected from the local context. This development could also adversely affect the lower to middle income residents of the surrounding neighborhood. The project will increase neighboring property values, which could lead to the displacement of existing residents, especially those who rent. Finally, new visitors to the area could have negative externalities associated with them, such as increase in traffic congestion and crime. While these new visitors will surely have economic benefits, their effect on the quality of life for area residents will be mixed.

## **Economic**

Compared to the other three scenarios, Scenario Four has the potential for the greatest economic benefits. First, while there are many options for the final financing scheme, this scenario will, without a doubt, encourage the greatest amount of private investment and has the potential to require the least amount of public investment. Beyond the private investment, new development in scenario 4 will create new jobs in the area. In the short term, many construction jobs will be needed to build new apartments for new residents, to build new housing for the slum residents, and to redevelop the lake. Over the long term, local requirements for services and the increase in visitors to Thaltej will ensure the creation of new small businesses and related jobs. Finally, the new development will benefit the entire city through a higher tax base through the increased property values at the site as well as the surrounding neighborhoods.

The major economic weaknesses of scenario 4 relate to the lack of clarity of who benefits financially from the development. Because private investment will be important for developing the site, if not structured properly, this scheme has the potential to heavily reward the private sector at the expense of existing residents and the city more generally. The final financing scheme needs to be cautious about giving up to many benefits to the private developers and not retaining enough of these benefits for the city. Another economic weakness is the potential displacement of informal businesses and existing residents because of the effects of gentrification. Although new local businesses will certainly be created and new residents will move in, planners need to be aware of what will happen to the existing businesses and residents.

## **Environmental**

Because of the complete redevelopment of the lake and the surrounding area, Scenario 4 has the potential to have the greatest environmental benefits. For the water body, the existing causes of pollution, including wastewater runoff and open defecation, will be fully eliminated in this scenario. For the surrounding community and the city more generally, this scenario will dramatically increase the amount of green space. Although the other scenarios will have similar effects of reduced pollution and increased green space, this scenario will have the most comprehensive environmental benefits.

While the environmental benefits of Scenario 4 are likely to be immediate, over the long term the intensity of the development—if not planned for—will cause new environmental challenges. Many new residents at the site and visitors to the site will undoubtedly increase the traffic congestion around the site. Coupled with the increase in automobile use in the city, the local environment will be adversely affected in the future. Second, although the design will eliminate the existing causes of water pollution, if not controlled, the new residents and visitors could form new pollution through littering. Some type of trash collection program will need to be implemented to prevent this from happening

Figure 8.4.5: Scenario 4 Funding

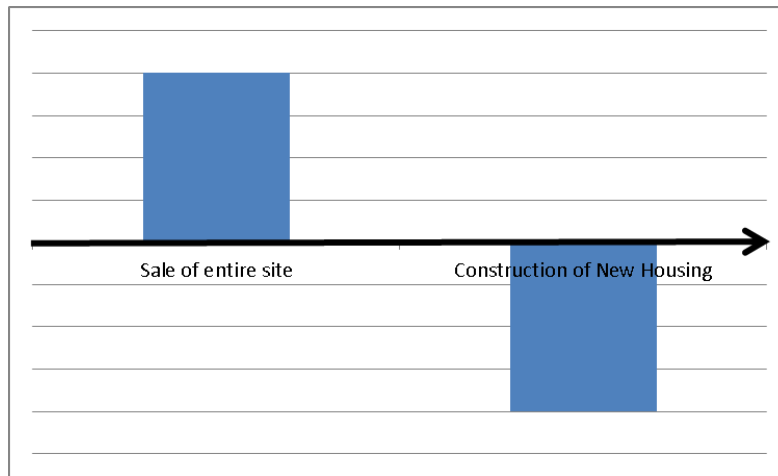


Figure 8.4.4: Expenditures and Revenues Timeline 1

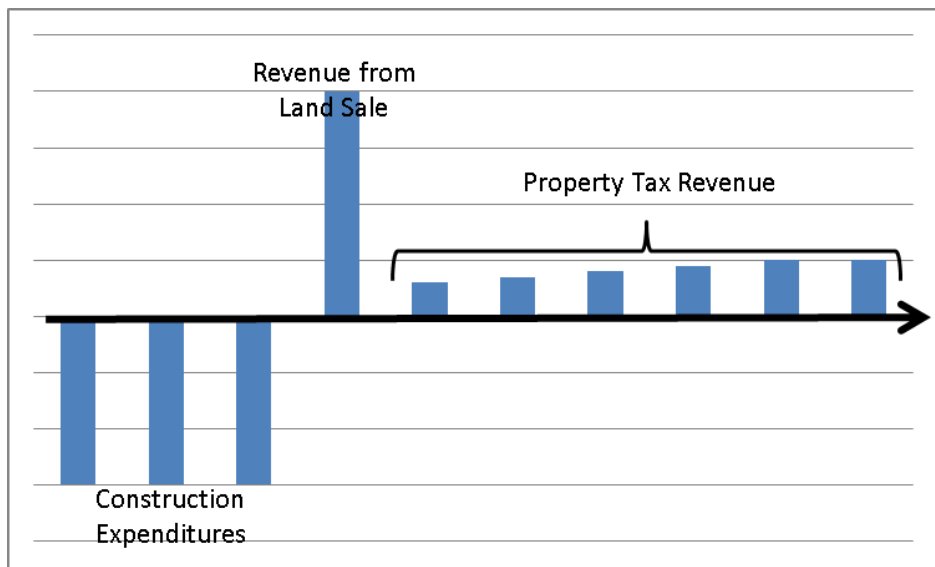
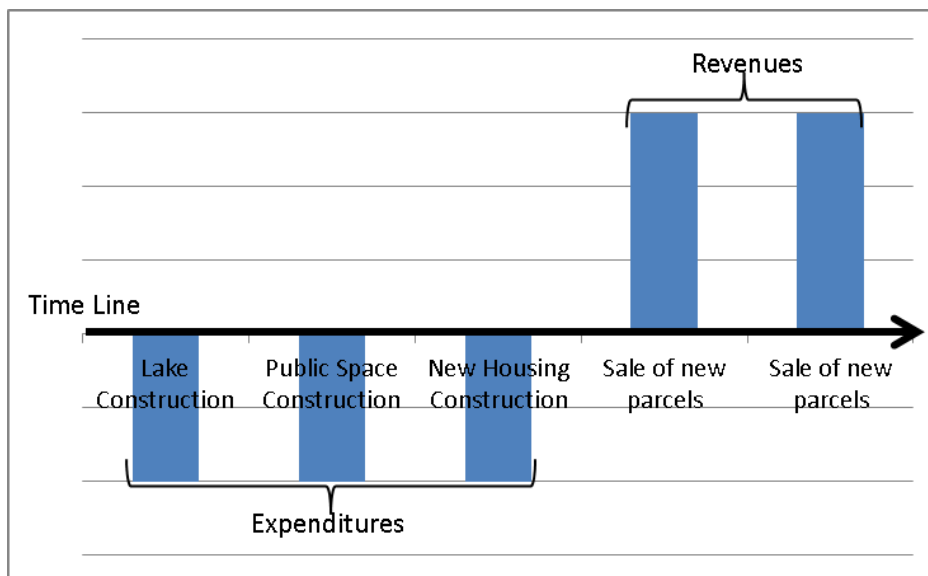


Figure 8.4.6: Expenditures and Revenues Timeline 2





## 9 Concluding Thoughts

While the form and process for redevelopment or upgrading of Thaltej Lake in the near future remains uncertain, the pressure for change and restructuring is mounting due to a rapidly expanding population, physical growth of the city, and the increasing wealth of Ahmedabad citizens and Indians at large. As Thaltej Lake moves up on AUDA's priority list for redevelopment, a process and form for change will surely emerge. This report addresses how Ahmedabad and stakeholders could reconsider Thaltej Lake as well as the process necessary for transition.

The alternatives presented for the Thaltej lake and surrounding communities address three primary issues; environmental and public health restoration of the area, the land value and economic concerns of AMC and AUDA, and the needs and lifestyle requirements of the current residents living around Thaltej lake. While four scenarios are presented independently, it was determined that each scenario is not mutually exclusive. While projecting the alternatives over a timeline, components of a scenario or a scenario in its entirety could be pursued as one step, followed by components of the next scenario. It is with this in mind that no one alternative was recommended. However, the public participation plan is a critical component to which each scenario or combination of scenarios pursued must address. The success of rebuilding or redevelopment of any form depends upon the engagement of the residents of Thaltej village, the residents of nearby neighborhoods, officials and other key stakeholders.

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